**Dominion Resources Services, Inc.** 5000 Dominion Boulevard, Glen Allen, VA 23060 Web Address: www.dom.com



December 18, 2013

# BY U.S. MAIL RETURN RECEIPT REQUESTED

Ms. Susan Mackert
Department of Environmental Quality
Northern Regional Office
13901 Crown Court
Woodbridge, VA 22193



RE: <u>Dominion North Anna Power Station; VPDES Permit No. VA0052451</u> Reissuance Application Addendum #4

Dear Ms. Mackert:

Virginia Electric and Power Company (Dominion) submitted an application for the renewal of VPDES Permit No. VA0052451 for the North Anna Power Station to DEQ on April 9, 2013. Addendum #1 to the application was submitted on July 5, 2013, Addendum #2 was submitted on July 30, 2013 and Addendum #3 was submitted on October 31, 2013. With this transmittal, we are submitting the attached Addendum #4 to the application to incorporate two new outfalls (Outfall 028 and 118) into the permit.

In response to the 2011 events at the Fukushima, Japan nuclear facility, Dominion is in the process of expanding capabilities to respond to a Beyond Design Basis (BDB) event. A BDB event is a natural disaster that results in damage beyond the design of the station. This effort is being conducted in accordance with Nuclear Regulatory Commission (NRC) requirements. As part of the BDB effort for North Anna (Units 1&2), Dominion is obtaining back-up mobile water pumps. These pumps can be mobilized to provide water to critical safety equipment in the event that offsite power and/or access to the ultimate heat sink were lost. If this occurred, the existing service water pumps would be unavailable. In a BDB event, these pumps could potentially be used to provide water for critical uses including water to the reactor vessel, water to the steam generator for cooling the reactor vessel, water for the spent fuel pool and water for spraying the containment structure.

Dominion currently has two BDB pumps onsite as discussed in the attached November 15, 2012 email and anticipates having a total of approximately nine BDB pumps of various sizes by the end of 2014. In order to ensure that the pumps are in working order, they must be tested periodically. Initially Dominion plans to test the pumps at a cove east of the discharge canal, identified as Outfall 028 on the attached outfall location map. We anticipate establishing an additional testing site on the discharge canal in the future, Outfall 118. During a test, water would be pumped from the lake or the discharge canal and immediately recirculated back into the source at the same location without coming in to contact with any

other equipment or processes associated with the North Anna Power Station's normal operation.

We anticipate continuing to test each pump on an approximately quarterly basis with a run time of about 30 minutes to an hour each event. The two pumps currently onsite have the highest capacity of the planned BDB pumps with a capacity of approximately 1,400 gpm. We anticipate running the pumps no longer than one hour during a test. The maximum anticipated volume pumped and re-circulated during a pump test is approximately 84,000 gallons. However, our estimate of the actual maximum likely volume pumped is approximately 14,000 gallons. We received the attached email from DEQ confirming that the BDB pump testing is excluded from Virginia Water Protection (VWP) Permit requirements.

We request that the BDB Pumps be identified as Outfall 028 and Outfall 118 in the VPDES permit. The applicable information is provided in the attached revised EPA Form 2C, process flow diagram and outfall location map.

Should you have any questions and/or require additional information, please contact Ken Roller at 804-273-3494 or via email at kenneth.roller@dom.com.

Sincerely.

Cathy C. Taylor

Director, Electric Environmental Services

Enclosure

Please type or print in the unshaded areas only

Form 2C **NPDES** 



# EPA ID Number (Copy from Item 1 of Form 1) 1100018911114 U.S. ENVIRONMENTAL PROTECTION AGENCY APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICUTLRAL OPERATIONS Consolidated Permits Program

I. Outfall Location

For this o							Receiving Water (name)
Outfall		Latitude	- Coo	Dog	Longitude	Sec	Receiving vvater (name)
Number (list) 001	Deg 38	Min 00	Sec 30.2	Deg -77	Min 43	43	Lake Anna
101	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
103	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
104	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
105	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
107	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
108	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
109	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
110	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
111	38	03	46	-77	47	13.4	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
112	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
113	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
114	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
115	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
116	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
117	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
118	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
009	38	03	43.6	-77	47	31	Lake Anna
013	38	03	43.6	-77	47	24.4	Lake Anna
016	38	03	43.6	-77	47	24.4	Lake Anna
020	38	03	43.6	-77	47	24.4	Lake Anna
021	38	03	43.6	-77	47	24.4	Lake Anna

Flows, So	urces of Pollution, and Treatme	ent Technologies		. 45	
effluent drawing (e.g. fo	a line drawing showing the water floot, and treatment units labeled to correct by showing average flows between a certain mining activities), provide a cent measures. See Attachment B.	espond to the more detailed a intakes, operations, treatment	tescriptions in Item B. Co t units, and outfalls. If a w	instruct a water baland vater balance cannot b	ce on the line e determined
For eac	ch outfall, provide a description of (1) vater, cooling water, and stormwater stewater. Continue on additional she	unoff; (2) the average flow co	stewater to the effluent, inc ntributed by each operation	luding process wastew n; and (3) the treatmer	vater, sanitary nt received by
1. Outfall	2. Operations Cor			3. Treatment	
Number	a. OPERATION (list)	b. AVERAGE FLOW	a. DESCRIPTION	b. LIST CODES F	ROM TABLE 20
001	Discharges from the Waste Heat Treatment Facility (WHTF), which includes internal outfalls, at Dike 3	2335.8 MGD	Discharge to Lake Anna	4-A	
101	Condenser cooling water	1838.8 MGD	Discharge to discharge canal	1-0	
103	Process wastewater clarifier, including flow from the liquid radioactive waste management system Steam generator blowdown Package boiler blowdown Mat sump system Ion exchange waste Sevice water system high capacity blowdown (intermittent)	0.312 MGD	Ion exchange; discharge to discharge canal	2-J	1-0
104	Turbine building sumps 1, 2, &3 Storm water Fire water system line drains Misc. discharges of purified or raw lake water from various infrequent plant maintenance activities Chiller water Service water Condensate Storage Tanks AST Containment Sump Demineralizer Sump Plant condensers Bearing cooling water Temporary package boiler blowdown	0.288 MGD	O/W separator; discharge to discharge canal Neutralization	1-H 2-K	1-0
105	Bearing cooling tower blowdown - Continuous blowdown - Lake to lake operation (intermittent)	0.084 MGD	Discharge to discharge canal	1-O	
107	Bearing cooling tower blowdown - Continuous blowdown - Lake to lake operation (intermittent) Strainer blowdown	Intermittent (has not discharge during 2008-2010 time period)	Discharge to discharge canal	1-0	
108	Service water overboard Batch blowdown overflow Straight-through cooling water Header maintenance	Intermittent (0.15 MGD for the 2008-2010 time period)	Discharge to discharge canal	1-O	
109	Hot well drain - Unit 1 Secondary system condenstate	Intermittent (1.152 MGD for the 2008-2010 time period)	Discharge to discharge canal	1-0	
110	Hot well drain – Unit 2 Secondary system condenstate	Intermittent (0.137 MGD for the 2008-2010 time period)	Discharge to discharge canal	1-0	
111	Unit 1 & 2 STP	0.03 MGD design daily avg flow 0.0058 MGD daily avg flow	See EPA Form 2A; Discharge to discharge canal	1-T, 1-L, XX, 3-A, 5-A, 1-U, 2-F	1-0
112	Steam generator blowdown - Unit 1	0.204 MGD	Discharge to discharge canal	1-0	
113	Steam generator blowdown - Unit 2	0.204 MGD	Discharge to discharge canal	1-0	

114	Service water tie-on vault drain	Intermittent	Discharge to discharge	1-0	
		(0.0002 MGD for the 2008- 2010 time period)	canal		
115	Service water system high capacity	Intermittent	Discharge to discharge	1 <b>-</b> O	
	blowdown	(has not discharge during 2008-2010 time period)	canal	-	
116	Vacuum priming pump	0.058 MGD	Discharge to discharge canal	1-0	
117	Salt storage pond	Intermittent	Discharge to discharge	1-U 1-O	
		(has not previously discharged)	canal	1-0	
118	BDB pumps	0.014 MGD	Discharge to discharge canal	1-0	
009	Settling pond: Groundwater; storm water; RO unit	0.576 MGD	Sedimentation;	1-U,	
	backwash; Bearing cooling tower		Discharge to Lake Anna	4-A	
	water during maintenance activities; Ionics emergency shower wash post				
	neutralization in holding tank				
013	Turbine building sumps #1 and #2 Stormwater	Intermittent	Discharge to Lake Anna	4-A	
	Plant condensers	(0.324 MGD for the 2008- 2010 time period)			
	Bearing cooling water Misc. discharges of purified or raw	, ,			
	lake water from various infrequent				
016	Intake screen wash water	3.744 MGD	Discharge to Lake Anna	4-A	
020	Reverse Osmosis (RO) reject	0.216 MGD (RO reject only)	Discharge to Lake Anna	4-A	
	RO unit backwash (*beginning with Unit 3 construction)	0.716 MGD (*including RO reject and RO backwash)			
021	RO drain line	Intermittent	Discharge to Lake Anna	4-A	
		(has not discharge during		ľ	
028	BDB pumps	2008-2010 time period) 0.014 MGD	Discharge to Lake Anna	4-A	

CONTINUED FROM THE FRONT C. Except for storm runoff, leaks, or spills, are any of the discharges described in Items II-A or B intermittent or seasonal? X YES (complete the following table) NO (go to Section III) 3. FREQUENCY 4. FLOW b. MONTHS a. FLOW RATE b. TOTAL VOLUME a. DAYS 2. OPERATION(s) 1. OUTFALL c. DUR-PER WEEK PER YEAR (specify with units (in mgd) NUMBER **CONTRIBUTING FLOW ATION** (specify (specify (list) (list) 1. LONG TERM 2. MAXIMUM (in days) 1. LONG TERM 2. MAXIMUM average) average) AVERAGE **AVERAGE** No discharge during 2008-2010 time period 107 Varies n/a Bearing cooling tower Varies blowdown Continuous blowdown Lake to lake operation (intermittent) Strainer blowdown 0.15 MGD 0.15 MGD 0.15 MG 0.15 MG Varies 1 108 Service water overboard Varies Batch blowdown overflow Straight-through cooling water Header maintenance 1.152 MGD 1.152 MG 1.152 MG 1/18 months 1.152 MGD Hot well drain - Unit 1 1/ outage 109 Secondary system condenstate Hot well drain - Unit 2 1/ outage 0.137 MGD 0.137 MGD 0.137 MGD 0.137 MGD 1 1/18 months 110 Secondary system condenstate 0.0002 MG 0.0002 MG Varies Varies 0.0002 MGD 0.0002 MGD 1 114 Service water tie-in vault drain 115 Service water system high Varies Varies No discharge during 2008-2010 time period n/a capacity blowdown No discharge to date n/a Varies Varies 117 Salt storage pond 0.014 MG 0.084 MG 0.014 MGD 0.084 MGD 1 118 BDB pumps Varies Varies 0.324 MG 0.324 MG 0.324 MGD 0.324 MGD 1 013 Turbine building sumps #1 Varies Varies and #2; stormwater No discharge during 2008-2010 time period 021 Varies Varies n/a RO drain line 0.014 MGD | 0.084 MGD | 0.014 MG Varies 0.084 MG 028 BDB pumps Varies III. PRODUCTION A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility? NO (go to Section IV) X YES (complete Item III-B) B. Are the limitations in the applicable effluent guideline expressed in terms of production (or other measure of operation)? X NO (go to Section IV) YES (complete Item III-C) C. If you answered "yes" to Item III-B, list the quantity which represents an actual measurement of your level of production, expressed in the terms and units used in the applicable effluent guideline, and indicate the affected outfalls. 1. AVERAGE DAILY PRODUCTION 2. AFFECTED **OUTFALLS** a. QUANTITY PER DAY b. UNITS OF MEASURE c. OPERATION, PRODUCT, MATERIAL, ETC. (list outfall numbers) (specify) N/A IV. IMPROVEMENTS A. Are you now required by any Federal, State, or local authority to meet any implementation schedule for the construction, upgrading, or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions. X NO (go to Item IV-B) YES (complete the following table) 4. FINAL 2. AFFECTED OUTFALLS 1. IDENTIFICATION OF CONDITION. 3. BRIEF DESCRIPTION OF PROJECT **COMPLIANCE DATE** AGREEMENT, ETC. b. PROa. No b. SOURCE OF DISCHARGE **JECTED** UIRED N/A B. OPTIONAL: You may attach additional sheets describing any additional water pollution control programs (or other environmental projects which may affect your discharges) you now have underway or which you plan. Indicate whether each program is now underway or planned, and indicate your actual or planned schedules for construction.

MARK "X" IF DESCRIPTION OF ADDITIONAL CONTROL PROGRAM IS ATTACHED

EPA ID Number (Copy from Item 1 of Form 1) 110001891114

# **CONTINUED FROM PAGE 2**

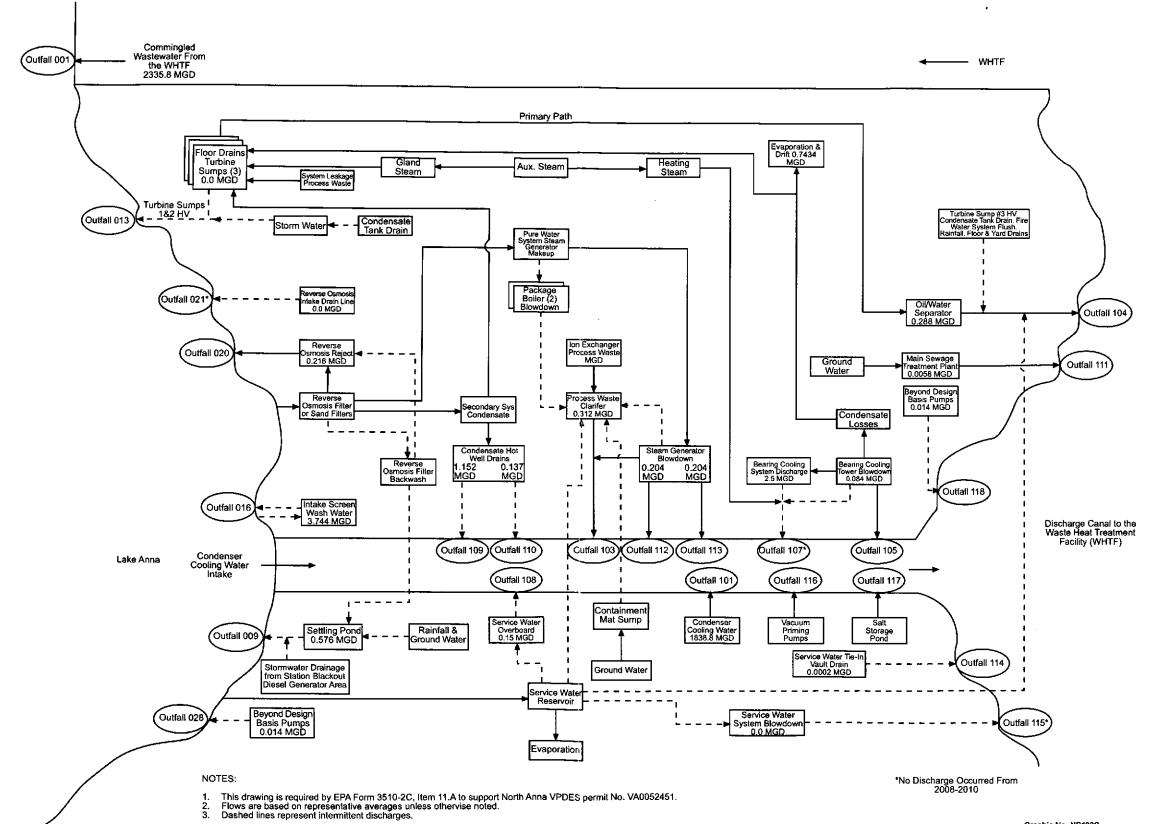
	efore proceeding - Complete one se	et of tables for each outfall - Annotate the parate sheets number V-1 through V-9.	e outfall number in the space provided.
D: Use the space below to list a may be discharged from any	ry of the pollutants listed in Tables 2	c-3 of the instructions, which you know	or have reason to believe is discharged or it to be present and report any analytical
data in your possession.	2. SOURCE	1. POLLUTANT	2. SOURCE
1. POLLUTANT	z. SOURCE r believed to be discharged from any		2. SOURCE
No 2C-3 pollutants are known o	believed to be discharged from any	y outrain.	F
			<u> </u>
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		1	
VI. POTENTIAL DISCHARGE	S NOT COVERED BY ANALY	SIS	
As radioactive releases at this fa C for a list of other potential dis	X YES (list all such pollutants cility are regulated by the Nuclear Ficharges not covered by analysis.	s below) LJ No Regulatory Commission (NRC), they ha	O (go to Item VI-B) ave not been listed here. See Attachment

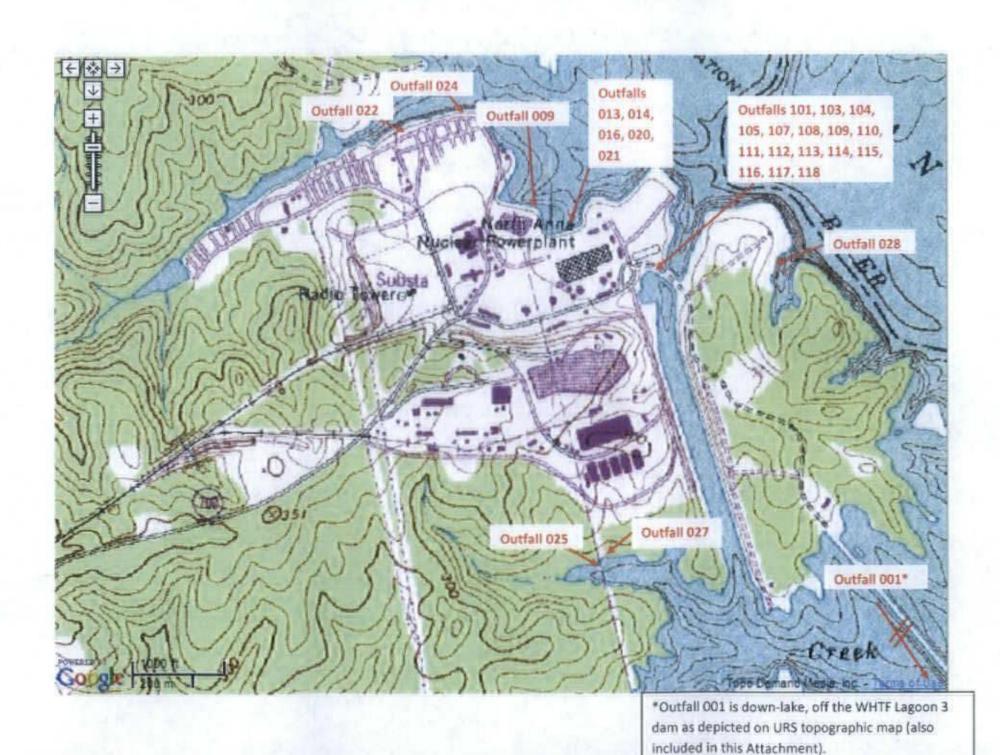
CONTINUED FROM THE FRONT VII. BIOLOGICAL TOXICITY TESTING DATA Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years? X YES (identify the test(s) and describe their purpose below) NO (go to Section VIII) Toxicity testing and reporting have been conducted in accordance with the requirements of Part I.C.1 of the VPDES permit. For outfall 001, the permit requires chronic 3-brood static renewal survival and reproduction tests with Ceriodaphnia dubia and chronic 7-day static renewal survival and growth tests with Pimephales promelas. A summary of the test results from 2008 - 2011 are below. Year C. dubia P. promelas NOEC Survival NOEC Reproduction **NOEC Survival** NOEC Growth 100% 100% 100% April 2008 100% 100% 100% 100% April 2009 100% 100% 25% 100% **April 2010** 100% Ocotber 2010 (1) 100% 50% \_ Ocotber 2010 (2) 100% 100% April 2011 100% 100% 100% 100% (1) Using Syntheic Freshwater (2) Using softened Synthetic Freshwater VIII. CONTRACT ANALYSIS INFORMATION Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm? X YES (list the name, address, and telephone number of, and pollutants NO (ao to Section IX)

A. NAME  B. ADDRESS  C. TELEPHONE (area code & no.)  (iist)  Primary Laboratories Inc.  7423 Lee Davis Rd., Mechanicsville, VA 23111  Pace Analytical  1638 Roscytown Rd., Greensburg, PA 15601  (724) 850-5600  See Attachment D  () () () () () () () () () () () () ()	,	analyzed by, each such laboratory or firm below)		
23111   Pace Analytical   1638 Roseytown Rd., Greensburg, PA 15601   (724) 850-5600   See Attachment D   ( )   (	A, NAME	B. ADDRESS		
	Primary Laboratories Inc.	· · · · · · · · · · · · · · · · · · ·	(804) 559-9004	See Attachment D
	Pace Analytical	1638 Roseytown Rd., Greensburg, PA 15601	(724) 850-5600	See Attachment D
			( )	
			( )	
			( )	
	N. OPPTIFICATION		( )	

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. NAME & OFFICIAL TITLE (type or print)	B. PHONE NO. (area code & no.)
Daniel G. Stoddard, Senior VP Nuclear Operations	(804) 273-4390
C. SIGNATURE	D. DATE SIGNED 12/17/2013





# Mackert, Susan (DEQ)

From:

Kenneth Roller (Services - 6) [kenneth.roller@dom.com]

Sent:

Monday, January 06, 2014 3:58 PM

To: Subject: Mackert, Susan (DEQ)

Attachments:

Addendum #4 NAPS Application NAPS BDB pump test location.pdf

Susan,

Here is the November 15, 2012 email mentioned in Addendum #4 to the NAPS application.

Ken

From: Jason P Ericson (Services - 6)

**Sent:** Thursday, November 15, 2012 10:17 PM **To:** Cheatham, John (DEQ); Mackert, Susan (DEQ)

Cc: Kenneth Roller (Services - 6); Randy Markey (Generation - 3); Cathy C Taylor (Services - 6); Glenn P Johnson

(Services - 6); Pamela Faggert (Services - 6); Robert C Simpson (Generation - 3)

Subject: Dominion North Anna Power Station: Pump Testing

Dell and Susan,

Dominion is planning to conduct testing of new emergency water pumps at the North Anna Power Station. We are providing information on our proposed activity to get your input on any permitting or notification requirements that may apply.

In response to the 2011 events at the Fukushima, Japan nuclear facility, Dominion is in the process of expanding capabilities to respond to a Beyond Design Basis (BDB) event. A BDB event is a natural disaster that results in damage beyond the design of the station. This effort is being conducted in accordance with NRC requirements. As part of the BDB effort for North Anna (Units 1&2), Dominion is obtaining back-up mobile water pumps. These pumps can be mobilized to provide water to critical safety equipment in the event that offsite power and/or access to the ultimate heat sink was lost. If this occurred, the existing service water pumps would be unavailable. In a BDB event, these pumps could potentially be used to provide water to the reactor vessel, water to the steam generator for cooling the reactor vessel, water for the spent fuel pool and water for spraying the containment structure.

In order to ensure that the pumps are in working order, they must be tested periodically. We are planning to conduct the first test of one of these pumps on December 4<sup>th</sup>. This is the first test that will occur. We plan to mobilize the pump in the location identified in the attached figure (cove east of discharge canal). Water would be pumped from the lake and immediately re-circulated back into the lake at the same location. The pump, <u>a Godwin HL130M</u>, has a capacity of approximately 1,400 gpm. We will be conducting a pump head test and anticipate running the pump no longer than one hour. The maximum anticipated volume pumped and re-circulated back to the lake is approximately 84,000 gallons. However, our estimate of the actual likely volume pumped is approximately 14,000 gallons.

We anticipate continuing to test this pump on an approximately quarterly basis with a run time of about 30 minutes each event. We anticipate conducting these events from the discharge canal in the future. However, we chose the proposed location for the first test because of ease of moving the equipment to this location for the initial event. There may be other BDB pumps in the future that we will plan to test in a similar fashion.

The questions we have are:

 Considering that the water will be immediately re-circulated through the pump back to the lake, will a VWP permit be required for a withdrawal greater than 10,000 gallons per day?

- If these tests were conducted in the discharge canal, we would like confirmation that no permit would be required.
- The water will not come into contact with any equipment other than the pump. Will we need to take any actions associated with VPDES in order to re-circulate the water directly back to the lake?
- Given the grandfathered status of the water withdrawal for Units 1&2, does Dominion need to obtain a VWP
  permit for emergency use of these pumps to service safety equipment in the event the existing Unit 1&2
  pumps/intake become inoperable as a result of a BDB event?

Please let me know if you would like to have a call to discuss this request.

Thanks, Jason

Jason P. Ericson, PG Dominion Resources Services, Inc. Electric Environmental Services 5000 Dominion Blvd Glen Allen, VA 23060 Phone: (804) 273-3485

Phone: (804) 273-3485 Fax: (804) 273-2964

CONFIDENTIALITY NOTICE: This electronic message contains information which may be legally confidential and/or privileged and does not in any case represent a firm ENERGY COMMODITY bid or offer relating thereto which binds the sender without an additional express written confirmation to that effect. The information is intended solely for the individual or entity named above and access by anyone else is unauthorized. If you are not the intended recipient, any disclosure, copying, distribution, or use of the contents of this information is prohibited and may be unlawful. If you have received this electronic transmission in error, please reply immediately to the sender that you have received the message in error, and delete it. Thank you.



# Mackert, Susan (DEQ)

From:

Kenneth Roller (Services - 6) [kenneth.roller@dom.com]

Sent:

Monday, January 06, 2014 5:56 PM

To:

Mackert, Susan (DEQ)

Subject:

Dominion NAPS VPDES Permit Application Addendum 4

Susan,

Here is the second email referenced in Addendum 4 to the NAPS VPDES permit application.

Ken

**From:** Dooley, Amy (DEQ) [mailto:Amy.Dooley@deq.virginia.gov]

Sent: Tuesday, November 20, 2012 9:48 PM

**To:** Jason P Ericson (Services - 6)

Cc: Beasley, Trisha (DEQ); Mackert, Susan (DEQ); Marsala, Sarah (DEQ)

Subject: RE: Dominion North Anna Power Station: Pump Testing

Good Evening Jason,

DEQ has reviewed your request email received November 16, 2012. Based on your request and per Regulation 9VAC25-210-60.B, the proposed water withdrawals are excluded from Virginia Water Protection (VWP) permit requirements due to the following:

- Pump testing. Located on a property such that the withdrawal returns to the stream of origin, not more than 1,000 feet of stream channel separate the withdrawal point from the return point, and both banks of the affected stream segment are located within the property boundary (9VAC25-210-60.B.13) and
- <u>Emergency pump use</u>. Used for firefighting activities or training activities related to firefighting activities, such as dry hydrants and emergency surface water withdrawals (9VAC25-210-60.B.9).

However, per State Water Control Board Water Withdrawal Reporting Regulation (9 VAC 25-200 et seq.), the water withdrawal(s) may be required to be reported if the withdrawal(s) average daily withdrawal during any single month exceeds 10,000 gallons per day. If the withdrawal(s) exceed(s) this amount, please provide the following to DEQ, via web based database, by January 31<sup>st</sup> of the next year:

- 1. Facility and contact name and address,
- 2. Sources and locations of water withdrawal.
- 3. Cumulative volume of water withdrawn each month of the calendar year,
- 4. Maximum day withdrawal and the month in which it occurred, and
- 5. Method of withdrawal measurement.

Please note that our determination of the proposed withdrawal's exclusion status does not alleviate the withdrawal user of their responsibility to operate in accordance with State Water Control Law or allow the withdrawal to be operated in a manner that results in adverse impacts to existing beneficial uses.

In regards to the discharge, Ms. Susan Mackert is currently reviewing the proposed action and a response from her should be forthcoming.

Please feel free to contact me if you have any questions.

# Respectfully,

# Amy Dooley

Department of Environmental Quality Northern Regional Office Virginia Water Protection Permit Program 13901 Crown Court Woodbridge, VA 22193

Phone: 703-583-3905 Fax: 703-583-3821

From: Jason P Ericson [mailto:jason.p.ericson@dom.com]

**Sent:** Friday, November 16, 2012 8:43 AM

To: Beasley, Trisha (DEQ)

Cc: Kenneth Roller

Subject: FW: Dominion North Anna Power Station: Pump Testing

## Trisha,

I sent the email below to Dell and received his autoreply that he will be out until the 26<sup>th</sup>. We are interested in getting DEQ's input on pump testing we would like to do at North Anna the first week of December. Please let me know if there is additional information you would need at this point or if I should send this on to anyone else at DEQ.

I hope all is well with you.

Thanks, Jason

From: Jason P Ericson (Services - 6)

Sent: Thursday, November 15, 2012 10:17 PM

To: 'Cheatham, John (DEQ)'; 'Mackert, Susan (DEQ)'

Cc: Kenneth Roller (Services - 6); Randy Markey (Generation - 3); Cathy C Taylor (Services - 6); Glenn P Johnson

(Services - 6); Pamela Faggert (Services - 6); Robert C Simpson (Generation - 3)

**Subject:** Dominion North Anna Power Station: Pump Testing

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## The questions we have are:

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  actions associated with VPDES in order to re-circulate the water directly back to the lake?
- Given the grandfathered status of the water withdrawal for Units 1&2, does Dominion need to obtain a VWP
  permit for emergency use of these pumps to service safety equipment in the event the existing Unit 1&2
  pumps/intake become inoperable as a result of a BDB event?

Please let me know if you would like to have a call to discuss this request.

Thanks, Jason

Jason P. Ericson, PG Dominion Resources Services, Inc. Electric Environmental Services 5000 Dominion Blvd Glen Allen, VA 23060 Phone: (804) 273-3485

Fax: (804) 273-348

CONFIDENTIALITY NOTICE: This electronic message contains information which may be legally confidential and/or privileged and does not in any case represent a firm ENERGY COMMODITY bid or offer relating thereto which binds the sender without an additional express written confirmation to that effect. The information is intended solely for the individual or entity named above and access by anyone else is unauthorized. If you are not the intended recipient, any disclosure, copying, distribution, or use of the contents of this information is prohibited and may be unlawful. If you have received this electronic transmission in error, please reply immediately to the sender that you have received the message in error, and delete it. Thank you.

**Dominion Resources Services, Inc.** 5000 Dominion Boulevard, Glen Allen, VA 23060 Web Address: www.dom.com



October 31, 2013

# <u>BY U.S. MAIL</u> RETURN RECEIPT REQUESTED

Ms. Susan Mackert
Department of Environmental Quality
Northern Regional Office
13901 Crown Court
Woodbridge, VA 22193



RE: <u>Dominion North Anna Power Station; VPDES Permit No. VA0052451</u> Reissuance Application Addendum #3

Dear Ms. Mackert:

Virginia Electric and Power Company (Dominion) submitted an application for the renewal of VPDES Permit No. VA0052451 for the North Anna Power Station to DEQ on April 9, 2013. Addendum #1 to the application was submitted on July 5, 2013 and Addendum #2 was submitted on July 30, 2013. With this transmittal, we are submitting the attached Addendum #3 to the application to incorporate a new stormwater outfall, Outfall 027, into the permit. Attached are revised Form 2F pages, a revised outfall location map and a revised site drainage map.

Outfall 27 drains an area that includes a portion of the warehouse and storage facilities, hazardous waste storage building, roadway and a fueling area. The area drains to a stormwater retention pond. The stormwater pond discharges over a riprap outfall to a drainage that discharges to the Waste Heat Treatment Facility. Materials are kept under cover with the exception of the fueling area. Stormwater from the fueling area is directed through an oil water separator prior to entering the stormwater pond.

The stormwater pond and other facilities within the drainage of Outfall 027 were constructed as part the North Anna Site Separation project that is currently underway. The Construction SWPPP for this project is referenced in Appendix H of the SWPPP for the North Anna Power Station. Site Separation activities are not currently complete. We request approval to submit monitoring data for Form 2F Part VII within three years of the permit's effective date.

Ms. Susan Mackert Page 2

Should you have any questions and/or require additional information, please contact Jason Ericson at 804-273-3485 or via email at <a href="mailto:jason.p.ericson@dom.com">jason.p.ericson@dom.com</a>.

Sincerely,

Cathy C. Taylor

Director, Electric Environmental Services

Enclosure

Please print or type in the unshaded areas

Form

2F

**NPDES** 

EPA ID Number (copy from item I of Form 1) 110001891114 Form Approved. OMB No. 2040-0086 Approval expires 5-31-92

**\$EPA** 

United States Environmental Protection Agency Washington, DC 20460

# Application for Permit to Discharge Storm Water Discharges Associated with Industrial Activity

### Paperwork Reduction Act Notice

Public reporting burden for this application is estimated to average 28.6 hours per application, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate, any other aspect of this collection of information or suggestions for improving this form, including suggestions which may increase or reduce this burden to: Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M St., SW, Washington, DC 20460, or Director, Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

#### Outfall Location For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water. **Outfall Number** D. Receiving Water B. Latitude C. Longitude (list) (name) 014 38 03 42.7 -77 47 28.6 Lake Anna 022 38 03 52.5 -77 47 52.8 Lake Anna 024 38 03 55.2 -77 47 38.4 Lake Anna 16.5 27.2 025 38 03 -77 47 Waste Heat Treatment Facility to Lake Anna 027 38 03 -77 21.7 11.6 47 Waste Heat Treatment Facility to Lake Anna

## II. Improvements

A. Are you now required by any Federal, State, or local authority to meet any implementation schedule for the construction, upgrading or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

Identification of Conditions,	2.	Affected Outfalls		4, F	
Agreements, Etc.	number	source of discharge	Brief Description of Project	a. req.	b. proj.
				ļ	
NA					
APPARE NO.					
			****		

B. You may attach additional sheets describing any additional water pollution (or other environmental projects which may affect your discharges) you now have under way or which you plan. Indicate whether each program is now under way or planned, and indicate your actual or planned schedules for construction.

Ш.	Site	Drainag	e Man
11111	Oite	Diamay	e map

See Attachment E.

Continued from the Front

# IV. Narrative Description of Pollutant Sources

A. For each outfall, provide an estimate of the area (include units) of impervious surfaces (including paved areas and building roofs) drained to the outfall, and an estimate of the total surface area drained by the outfall.

Outfall Number	Area of Impervious Surface (provide units)	Total Area Drained	Outfall Number	Area of Impervious Surface (provide units)	Total Area Drained (provide units)
014	1.5 acres	2 acres	024	0.08 acre	9 acres
022	7.1 acres	52 acres	025 027	30 acres 1.3 acres	56 acres 4.0 acres

B. Provide a narrative description of significant materials that are currently or in the past three years have been treated, stored or disposed in a manner to allow exposure to storm water; method of treatment, storage, or disposal; past and present materials management practices employed to minimize contact by these materials with storm water runoff; materials loading and access areas; and the location, manner, and frequency in which pesticides, herbicides, soil conditioners, and fertilizers are applied.

For Outfalls 014, 022, 024 and 025, see Attachment F.

Outfall 027: Outfall 27 drains an area approximately 4.0 acres, with approximately 1.3 of acres being impervious. This area includes a portion of the warehouse and storage facilities, hazardous waste storage building, roadway and a fueling area. The area drains to a stormwater retention pond. The stormwater pond discharges over a riprap outfall to a drainage that discharges to the Waste Heat Treatment Facility. Materials are kept under cover with the exception of the fueling area. Stormwater from the fueling area is directed through an oil water separator prior to entering the stormwater pond. The stormwater pond and other facilities within the drainage of Outfall 027 were constructed as part the North Anna Site Separation project that is currently underway.

C. For each outfall, provide the location and a description of existing structural and nonstructural control measures to reduce pollutants in storm water runoff; and a description of the treatment the storm water receives, including the schedule and type of maintenance for

control and treatment measures and the ultimate disposal of any solid or fluid wastes other than by discharge.

desired and social one medical be and the desired desposed of any condition that by alcoholings.					
Outfall		List Codes from			
Number	Treatment	Table 2F-1			
014,022,	See Attachment F.	1-O (Outfall 025)			
024,025		4-A (all outfalls)			
027	Outfall 027 drains to a stormwater retention pond. The stormwater pond discharges over a rirap outfall to a drainage that discharges to the Waste Heat Treatment Facility. Materials are kept under cover with the exception of the fueling area. Stormwater from the fueling area is directed through an oil water separator prior to entering the stormwater pond.	4-A 1-U			

# V. Non Stormwater

**Discharges** 

I certify under penalty of law that the outfall(s) covered by this application have been tested or evaluated for the presence of non-stormwater discharges, and that all non-stormwater discharges from these outfall(s) are identified in either an accompanying Form 2C or Form 2E application for the outfall.

Name of Official Title (type or print)

Daniel G. Stoddard, Senior VP Nuclear Operations

Signature

Dan Joddod

1013612013

B. Provide a description of the method used, the date of any testing, and the onsite drainage points that were directly observed during a test.

Dry Weather Evaluations for Outfalls 014, 022, 024 and 025 were conducted with the Annual Comprehensive Site Compliance Evaluation on the following date 08/20/2008. Outfall 022 was observed to have flow and was sampled and analyzed in October and November, respectively, in 2008. A copy of the documentation can be found at the end of **Attachment F**.

Outfall 027 is a new outfall. The drainage area for Outfall 027 was evaluated for the presence of non-stormwater discharges on October 10, 2013 and none were identified. A Dry Weather Evaluation for Outfall 027 will be incorporated into future Annual Comprehensive Site Compliance Evaluations.

# VI. Significant Leaks or Spills

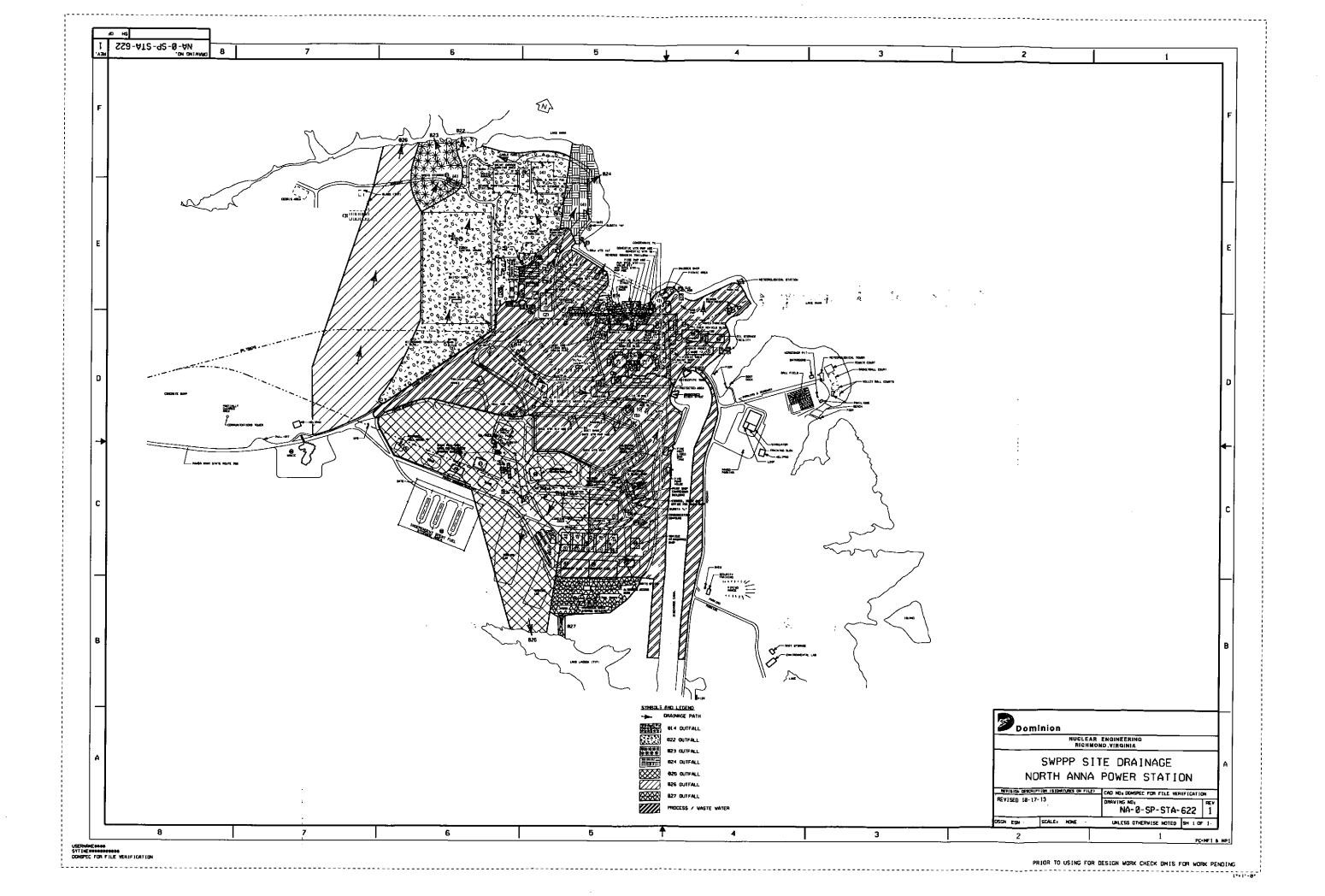
Provide existing information regarding the history of significant leaks or spills of toxic or hazardous pollutants at the facility in the last three years, including the approximate date and location of the spill or leak, and the type and amount of material released.

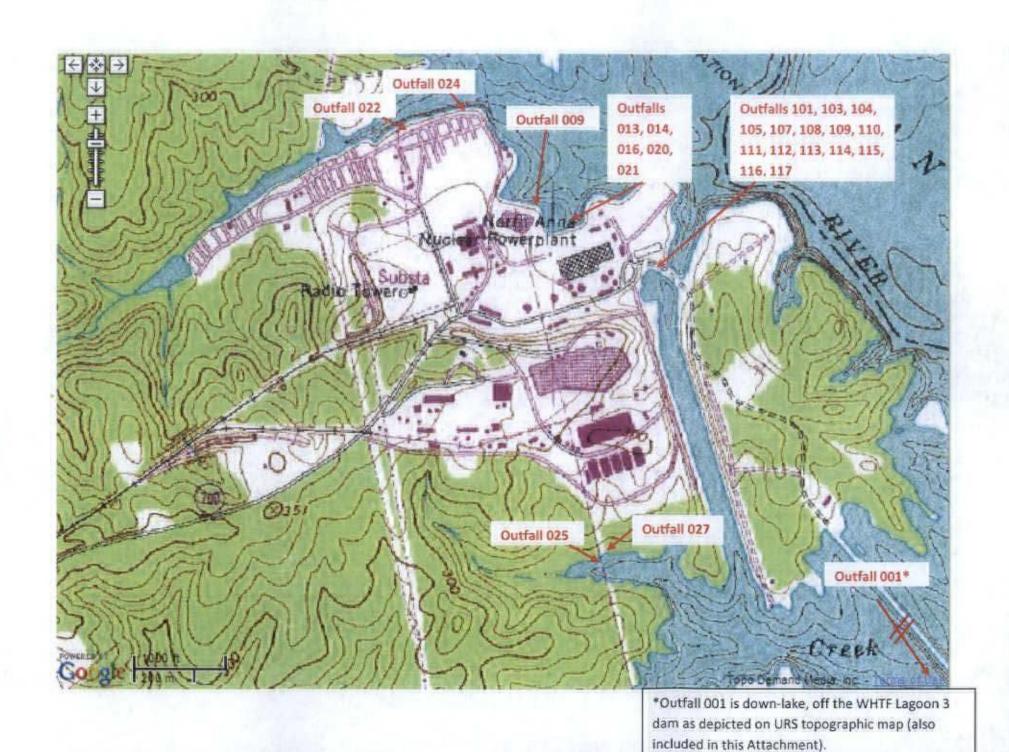
None.

Continued from Page 2

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VII. Discharge Information			
A,B,C, & D: See instruction before proceeding Tables Vii-A, VII-B, and VII-C are	included on separate sheets numbered	VII-1 and VII-2.	
Potential discharges not covered by anal substance which you currently use or man			nce or a component of a
X Yes (list all such pollutants below)			No (go to Section IX)
As radioactive releases at this facility are regu Attachment C for a list of other potential disc		ission (NRC), they have not bec	en listed here. See
VIII. Biological Toxicity Testing		and the second of the second o	
Do you have any knowledge or reason to believ on a receiving water in relation to your discharge	ve that any biological test for acute or ch ge within the last 3 years?	ronic toxicity has been made on	
Yes (list all such pollutants below)		<u> </u>	No (go to Section IX)
IX. Contact analysis Information			
Were any of the analysis reported in item VII pe	erformed by a contact laboratory or cons	ultina firm?	
Yes (list the name, address, and tele			No (go to Section X)
analyzed by, each such laborate			140 (90 10 00010177)
A. Name	B. Address	C. Area Code & Phone No.	D. Pollutants Analyzed
Primary Laboratories Inc.	7423 Lee Davis Rd.,	(804) 559-9004	See Attachment D
	Mechanicsville, VA 23111		
1			ļ ,
I			
	l		
X. Certification			
I certify under penalty of law the	at this document and all attac	hments were prepared i	inder my direction or
supervision in accordance with a s			
the information submitted. Based of	on my inquiry of the nerson or ne	reone who manage the ev	etem or those persons
directly responsible for gathering t			
belief, true, accurate, and complete			
including the possibility of fine and			itting raise iinormation,
A. Name & Official Title (type or print)	improvement for anoming riotal	B. Area Code and I	Phone No.
Daniel G. Stoddard, Senior VP Nuclear Opera	tions	804-273-4390	
C. Signature Oan Stordand		D. Date Signed 1 0 1 3 0 1 2	013





**Dominion Resources Services, Inc.** 5000 Dominion Boulevard, Glen Allen, VA 23060 Web Address: www.dom.com



July 30, 2013

# <u>BY U.S. MAIL</u> RETURN RECEIPT REQUESTED

Ms. Susan Mackert
Department of Environmental Quality
Northern Regional Office
13901 Crown Court
Woodbridge, VA 22193

NORTHERN PALE NORTHERN REGIONAL OFFICE

RE: <u>Dominion North Anna Power Station; VPDES Permit No. VA0052451</u> Reissuance Application Addendum #2

Dear Ms. Mackert:

Our application for the renewal of VPDES Permit No. VA0052451 for the North Anna Power Station was submitted to DEQ on April 9, 2013. Addendum #1 to the application was submitted on July 15, 2013. With this transmittal, we are submitting the attached Addendum #2 to the application to recognize our plans to relocate a portion of the wastewater currently discharged through Outfall 009 to the existing Outfall 020.

Should you have any questions and/or require additional information, please contact Jason Ericson at 804-273-3485 or via email at jason.p.ericson@dom.com.

Sincerely,

Cathy C. Taylor

Director, Electric Environmental Services

Enclosure

# North Anna Power Station VPDES Permit Application Addendum #2

The North Anna Power Station's reverse osmosis (RO) system purifies water withdrawn from Lake Anna for use in critical station processes. There are several steps involved with the water purification process including, in sequence: 1) initial filtration using multimedia (MM) filters, 2) filtration through granulated activated carbon (GAC), and 3) polishing with reverse osmosis. The MM and GAC filter backwash wastewaters (approximately 0.50 million gallons per day (mgd)) are currently directed to a settling pond where they mix with stormwater prior to being discharged to Lake Anna through Outfall 009. The electrodionization (EDI) system is a water treatment system associated with the RO system. The EDI polishes product water following treatment by the RO Units. Water used by the EDI system for cooling and removal of constituents filtered out of the product water is blown down at approximately 0.07 mgd. The EDI system wastewater mixes with the RO filter backwashes and is discharged through the RO backwash discharge pipe to the settling pond.

Should Dominion decide to move forward with North Anna Unit 3, the construction and operation of the associated intake structure will require the relocation of the Units 1 and 2 RO filter backwash discharge. Consequently, Dominion plans to install the new discharge piping as part of Site Separation, a process currently underway to physically separate Units 1 and 2 from the proposed Unit 3. The RO filter backwash will be directed to the existing RO reject stream and the combined flow discharged through the existing Outfall 020. Outfall 020 currently discharges about 0.216 mgd to Lake Anna approximately 25 feet from the Units 1 and 2 intake structures.

Construction of the infrastructure to allow the relocation of the RO backwash discharge is planned for 2013. Infrastructure to allow the relocation will include new piping and systems to prevent discharge of filter bed material. Initial testing of the new infrastructure is planned for 2013. We will be seeking DEQ's permission to conduct this testing through a separate submittal. However, the initiation of permanent utilization of the new discharge piping and discharge of the RO backwash through Outfall 020 will not occur until the initiation of the construction of Unit 3. In the event Dominion decides to build Unit 3, initiation of the construction of Unit 3 will occur following receipt of a certificate of public convenience and necessity from the Virginia State Corporation Commission. Discharge of RO backwash through Outfall 009 will continue until initiation of the construction of Unit 3.

Attached are revised EPA Form 2C pages and a revised process line diagram, which have been modified to recognize the relocated RO filter backwash discharge. Additional information concerning studies undertaken to determine the chemical characteristics of this waste stream are provided below. It should be noted that the chemical data provided are for the existing RO backwash and do not recognize that this waste stream will be mixed with the RO reject waste stream prior to discharge through Outfall 020.

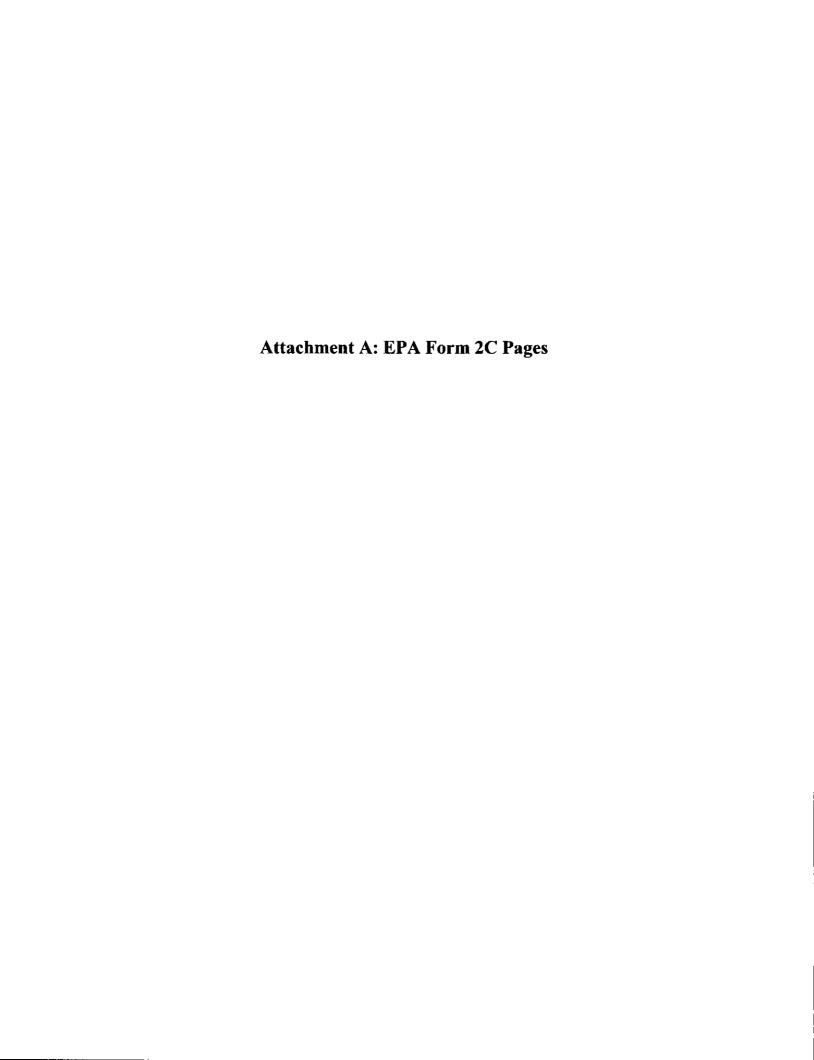
We are requesting that the following be incorporated into the reissued permit:

 Authorization to continue to discharge the RO backwash to the settling ponds and out Outfall 009 until Unit 3 construction is initiated

- Authorization to discharge the RO backwash to the existing RO reject stream and discharge the combined wastewater through Outfall 020 on a temporary basis during testing of the new infrastructure prior to initiation of construction of Unit 3
- Authorization to discharge the RO backwash to the existing RO reject stream and discharge the combined wastewater through Outfall 020 on a permanent basis following initiation of the construction of Unit 3
- Use of a grab or 24-hour composite sample for demonstrating compliance with total suspended solids (TSS) limits for Outfall 020

# Chemical Analyses of RO Filter Backwash

The RO filter backwash includes backwash from the multi-media (MM) filters and the granulated activated carbon (GAC) filters. The MM filters backwash for approximately 22 hours per day. Each of the five MM filters is backwashed individually for about 45 minutes, one at a time in sequence. The GAC filters are backwashed approximately every two weeks for several hours. Dominion conducted a series of sampling events in February 2013, both grab and 24-hour composite, to characterize the two RO backwashes. As EDI discharge is coincident with the RO filter backwash, this sampling also captured the EDI water discharge. Samples were analyzed for applicable EPA Form 2C and water quality standard parameters. Attached is a table identifying all the parameters detected during the February sampling of the RO backwash discharge and associated laboratory data sheets. The results labeled MM 24-hour composite were collected during a 24-hour period when only the MM filters were backwashed. The results labeled GAC 24-hour composite were collected during a 24-hour period that incorporated both the regular MM backwash and a GAC backwash event. It should be noted that the primary source for those pollutants detected in the wastewater is the Lake Anna make-up water.



Please type or print in the unshaded areas only

110001891114

Form Approved OMB No. 2040-0086 Approval expires 3-31-98

Form 2C **NPDES** 



### U.S. ENVIRONMENTAL PROTECTION AGENCY APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICUTLRAL OPERATIONS Consolidated Permits Program

I. Outfall Location For this outfall, list the latitude and longitude of its location to the nearest 15 seconds and name of the receiving water. Outfall Latitude Longitude Receiving Water (name) Number (list) Deg Min Sec Deg Min Sec 001 38 00 30.2 -77 43 Lake Anna 38 47 101 03 5.8 -77 3.1 Discharge Canal to Waste Heat Treatment Facility to Lake Anna 103 47 38 03 5.8 -77 3.1 Discharge Canal to Waste Heat Treatment Facility to Lake Anna 104 38 03 5.8 -77 47 3.1 Discharge Canal to Waste Heat Treatment Facility to Lake Anna 105 -77 47 38 03 5.8 3.1 Discharge Canal to Waste Heat Treatment Facility to Lake Anna 107 38 -77 47 3.1 03 5.8 Discharge Canal to Waste Heat Treatment Facility to Lake Anna 108 38 47 03 5.8 -77 3.1 Discharge Canal to Waste Heat Treatment Facility to Lake Anna 109 38 03 5.8 -77 47 3.1 Discharge Canal to Waste Heat Treatment Facility to Lake Anna 110 38 03 5.8 -77 47 3.1 Discharge Canal to Waste Heat Treatment Facility to Lake Anna 111 38 03 46 47 13.4 Discharge Canal to Waste Heat Treatment Facility to Lake Anna -77 112 38 03 5.8 -77 47 3.1 Discharge Canal to Waste Heat Treatment Facility to Lake Anna 113 38 03 5.8 -77 47 3.1 Discharge Canal to Waste Heat Treatment Facility to Lake Anna 114 38 03 5.8 -77 47 3.1 Discharge Canal to Waste Heat Treatment Facility to Lake Anna 115 38 03 5.8 -77 47 3.1 Discharge Canal to Waste Heat Treatment Facility to Lake Anna 38 3.1 116 03 5.8 -77 47 Discharge Canal to Waste Heat Treatment Facility to Lake Anna 117 38 03 5.8 -77 47 3.1 Discharge Canal to Waste Heat Treatment Facility to Lake Anna 009 38 03 43.6 -77 47 31 Lake Anna 013 38 03 43.6 -77 47 24.4 Lake Anna 016 38 03 -77 47 43.6 24.4 Lake Anna 020 38 03 43.6 -77 47 24.4 Lake Anna 021 38 03 43.6 -77 47 24.4 Lake Anna

II. Flows, Sources of Pollution, and Treatment Technologies

- A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined (e.g. for certain mining activities), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures. See Attachment B.
- B. For each outfall, provide a description of (1) all operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and stormwater runoff; (2) the average flow contributed by each operation; and (3) the treatment received by the wastewater. Continue on additional sheets if necessary.

	stewater. Continue on additional shee				
1. Outfall	2. Operations Cont	ributing Flow		3. Treatment	
Number	a. OPERATION (list)	b. AVERAGE FLOW	a. DESCRIPTION	b. LIST CODES F	ROM TABLE 2C-
001	Discharges from the Waste Heat Treatment Facility (WHTF), which includes internal outfalls, at Dike 3	2335.8 MGD	Discharge to Lake Anna	4-A	
101	Condenser cooling water	1838.8 MGD	Discharge to discharge canal	1-0	
103	Process wastewater clarifier, including flow from the liquid radioactive waste management system Steam generator blowdown Package boiler blowdown Mat sump system lon exchange waste Sevice water system high capacity blowdown (intermittent)	0.312 MGD	Ion exchange; discharge to discharge canal	2-J	1-0
104	Turbine building sumps 1, 2, &3 Storm water Fire water system line drains Misc. discharges of purified or raw lake water from various infrequent plant maintenance activities Chiller water Service water Condensate Storage Tanks AST Containment Sump Demineralizer Sump Plant condensers Bearing cooling water Temporary package boiler blowdown	0.288 MGD	O/W separator; discharge to discharge canal Neutralization	1-H 2-K	1-0
105	Bearing cooling tower blowdown - Continuous blowdown - Lake to lake operation (intermittent)	0.084 MGD	Discharge to discharge canal	1-0	
107	Bearing cooling tower blowdown - Continuous blowdown - Lake to lake operation (intermittent) Strainer blowdown	Intermittent (has not discharge during 2008-2010 time period)	Discharge to discharge canal	1-0	
108	Service water overboard Batch blowdown overflow Straight-through cooling water Header maintenance	Intermittent (0.15 MGD for the 2008-2010 time period)	Discharge to discharge canal	1-0	
109	Hot well drain – Unit 1 Secondary system condenstate	Intermittent (1.152 MGD for the 2008-2010 time period)	Discharge to discharge canal	1-0	
110	Hot well drain – Unit 2 Secondary system condenstate	Intermittent (0.137 MGD for the 2008-2010 time period)	Discharge to discharge canal	1-0	
111	Unit 1 & 2 STP	0.03 MGD design daily avg flow 0.0058 MGD daily avg flow	See EPA Form 2A; Discharge to discharge canal	1-T, 1-L, XX, 3-A, 5-A, 1-U, 2-F	1-0
112	Steam generator blowdown - Unit 1	0.204 MGD	Discharge to discharge canal	1-0	
113	Steam generator blowdown – Unit 2	0.204 MGD	Discharge to discharge canal	1-0	
114	Service water tie-on vault drain	Intermittent (0.0002 MGD for the 2008- 2010 time period)	Discharge to discharge canal	1-0	_

115	Service water system high capacity blowdown	Intermittent (has not discharge during 2008-2010 time period)	Discharge to discharge canal	1-0	
116	Vacuum priming pump	0.058 MGD	Discharge to discharge canal	1-0	
117	Salt storage pond	Intermittent (has not previously discharged)	Discharge to discharge canal	1-U 1-O	
009	Scttling pond: Groundwater; storm water; RO unit backwash; Bearing cooling tower water during maintenance activities; Ionics emergency shower wash post neutralization in holding tank	0.576 MGD	Sedimentation; Discharge to Lake Anna	1-U, 4-A	
013	Turbine building sumps #1 and #2 Stormwater Plant condensers Bearing cooling water Misc. discharges of purified or raw lake water from various infrequent plant maintenance activities	Intermittent (0.324 MGD for the 2008- 2010 time period)	Discharge to Lake Anna	4-A	
016	Intake screen wash water	3.744 MGD	Discharge to Lake Anna	4-A	
020	Reverse Osmosis (RO) reject RO unit backwash (*beginning with Unit 3 construction)	0.216 MGD (RO reject only) 0.716 MGD (*including RO reject and RO backwash)	Discharge to Lake Anna	4-A	
021	RO drain line	Intermittent (has not discharge during 2008-2010 time period)	Discharge to Lake Anna	4-A	

# **CONTINUED FROM THE FRONT**

	torm runoff, leaks, or sp <b>S</b> (complete the following)					or seasonal?		
ļ	Complete the fellows	-	QUENCY	NO (go to Section	on III)	4. FLOW		
1. OUTFALL NUMBER	2. OPERATION(s) CONTRIBUTING FLO	a. DAYS OW PER WEEK	b. MONTHS PER YEAR		W RATE mgd)	b. TOTAL (specify	VOLUME with units	c. DUR- ATION
(list)	(list)	(specify average)	(specify average)	1. LONG TERM AVERAGE	2. MAXIMUM DAILY	1. LONG TERM AVERAGE	2. MAXIMUM DAILY	(in days)
107	Bearing cooling tower blowdown	Varies	Varies			2008-2010 time pe		n/a
	- Continuous blowdown - Lake to lake operation							
	(intermittent Strainer blowdown	)						
108	Service water overboard Batch blowdown overflo Straight-through cooling water Header maintenance	ow	Varies	0.15 MGD	0.15 MGD	0.15 MG	0.15 MG	1
109	Hot well drain – Unit 1 Secondary system condenstate	1/ outage	1/18 months	1.152 MGD	1.152 MGD	1.152 MG	1.152 MG	1
110	Hot well drain – Unit 2 Secondary system condenstate	1/ outage	1/18 months	0.137 MGD	0.137 MGD	0.137 MGD	0.137 MGD	1
114	Service water tie-in vau drain		Varies	0.0002 MGD	0.0002 MGD	0.0002 MG	0.0002 MG	1
115	Service water system hi capacity blowdown	gh Varies	Varies	No	discharge during	2008-2010 time pe	eriod	n/a
117	Salt storage pond	Varies	Varies			te; <xxxxx mg<="" td=""><td></td><td>n/a</td></xxxxx>		n/a
013	Turbine building sumps and #2; stormwater	#1 Varies	Varies	0.324 MGD	0.324 MGD	0.324 MG	0.324 MG	]
021	RO drain line	Varies	Varies	No	discharge during	2008-2010 time pe	eriod	n/a
III. PRODUCT	TION						i	
A. Does an e	effluent guideline limitati					ply to your facilit	y?	
A. Does an e	X YES (complete Item	III-B)		) (go to Section	IV)			
A. Does an e	X YES (complete Item nitations in the applicable YES (complete Item	III-B) e effluent guideline e n III-C)	expressed in term	<b>O</b> (go to Section as of production (go to Section I	i IV) (or other measu IV)	re of operation)?	?	
A. Does an e  B. Are the lin  C. If you ans	X YES (complete Item nitations in the applicable YES (complete Item wered "yes" to Item III-E	III-B) e effluent guideline on III-C) B, list the quantity wh	expressed in tem  X NO ich represents ar	O (go to Section is of production (go to Section I actual measur	i IV) (or other measu IV)	re of operation)?	?	he terms
A. Does an e  B. Are the lin  C. If you ans	X YES (complete Item nitations in the applicable YES (complete Item	III-B) e effluent guideline on III-C) B, list the quantity wh	expressed in term  X NO ich represents are indicate the affe	O (go to Section is of production (go to Section is actual measureted outfalls.	i IV) (or other measu IV)	re of operation)?	expressed in t	ECTED
A. Does an e  B. Are the lin  C. If you ans and units an	X YES (complete Item nitations in the applicable YES (complete Item wered "yes" to Item III-E used in the applicable e	III-B) e effluent guideline on III-C) B, list the quantity what guideline, and 1. AVERAGE [	expressed in term X NO ich represents ar I indicate the affe	O (go to Section is of production (go to Section is actual measureted outfalls.	o IV) (or other measu IV) ement of your le	re of operation)?	expressed in t	
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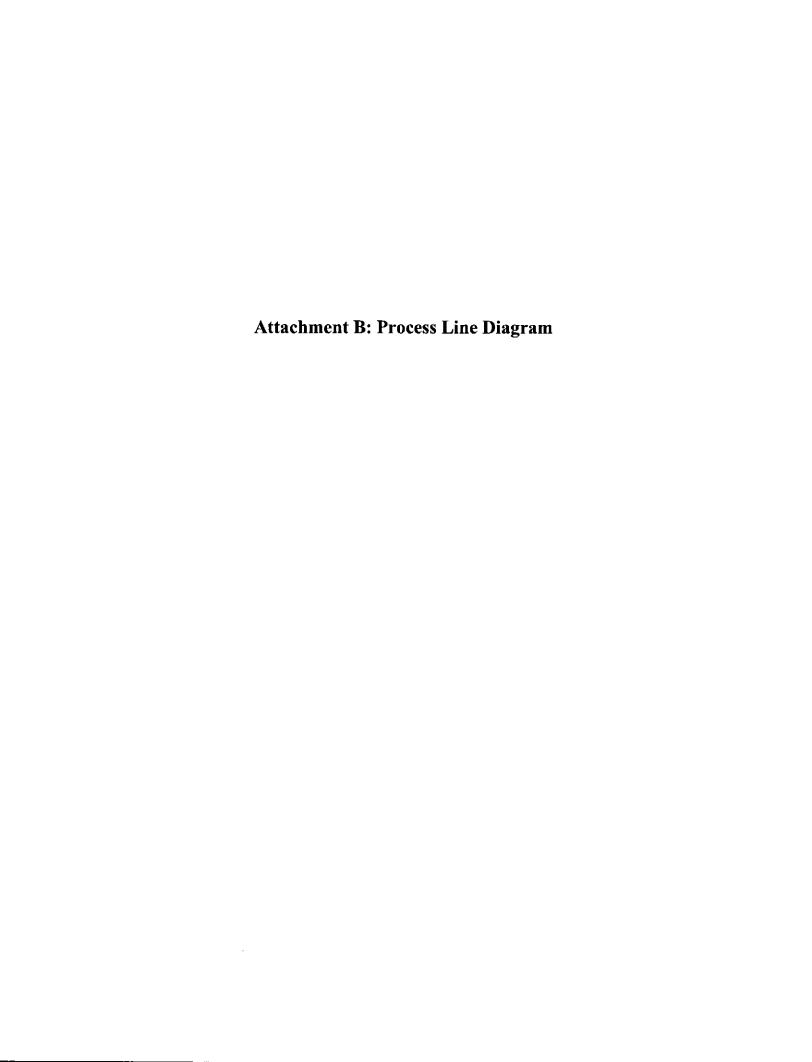
EPA ID Number (Copy from Item 1 of Form 1)
110001891114

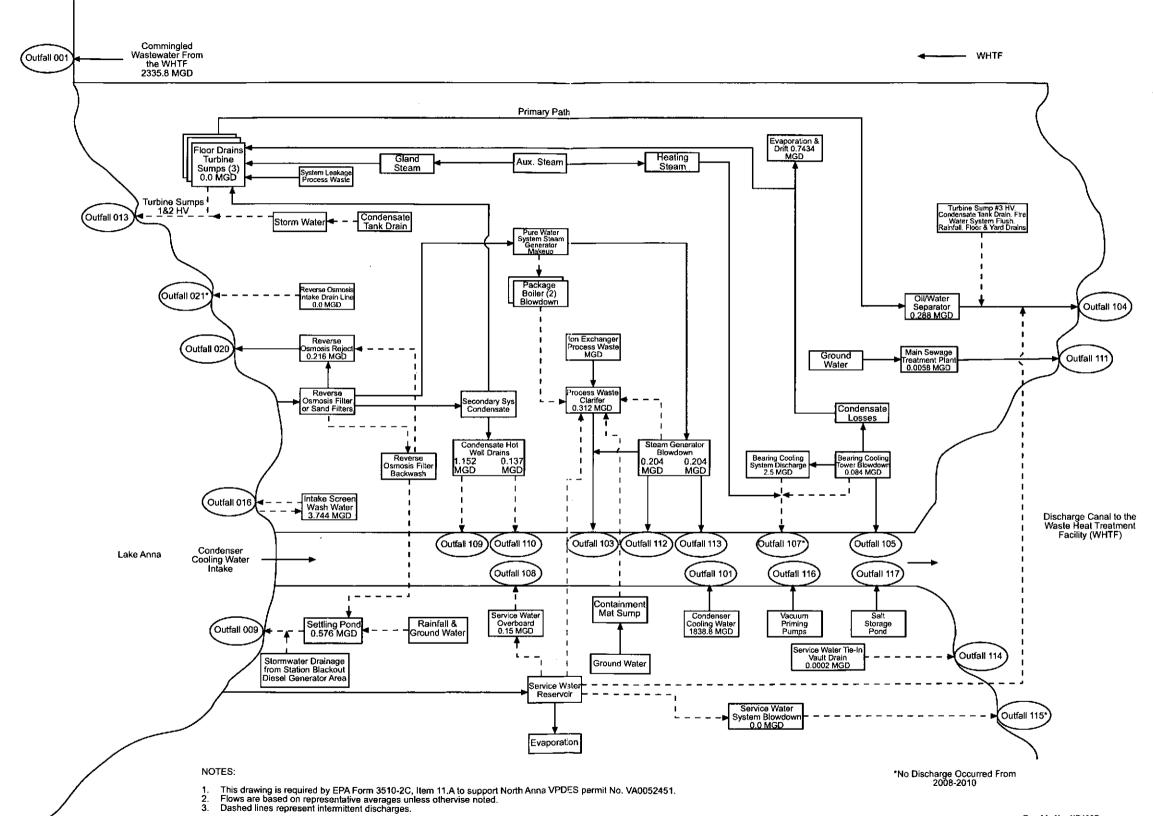
**CONTINUED FROM PAGE 2** 

V. INTAKE AND EFFLUENT	CHARACTERISTICS		
A, B, & C: See instructions b	efore proceeding - Complete one se	et of tables for each outfall - Annotate the	outfall number in the space provided.
NOTE: Tables V-	A, V-B, and V-C are included on sep	parate sheets number V-1 through V-9.	r have reason to helieve is discharged or
may be discharged from any	outfall. For every pollutant you list. I	briefly describe the reasons you believe it	to be present and report any analytical
data in your possession.			
1. POLLUTANT	2. SOURCE	1. POLLUTANT	2. SOURCE
No 2C-3 pollutants are known or	believed to be discharged from an	y outfall.	
<del>"</del> "			
			·-
VI. POTENTIAL DISCHARGE	S NOT COVERED BY ANALY	SIS	
Is any pollutant listed in Item	V-C a substance or a component of	a substance which you currently use or m	nanufacture as an intermediate or final
product or byproduct?	<b>V</b>		
	X YES (list all such pollutant		(go to Item VI-B)
		Regulatory Commission (NRC), they have	ve not been listed here. See Attachment
C for a list of other potential disc	charges not covered by analysis.		
			<b>!</b>

# **CONTINUED FROM THE FRONT**

	TESTING DATA		
	eason to believe that any biological test for acute o	r chronic toxicity has been ma	de on any of your discharges or on a
	r discharge within the last 3 years?		
Хү	'ES (identify the test(s) and describe their purpose in		NO (go to Section VIII)
Toxicity testing and reporting h	ave been conducted in accordance with the require	ements of Part I.C.1 of the VI	DES permit. For outfall 001, the
	static renewal survival and reproduction tests with		ronic 7-day static renewal survival and
growth tests with Pimephales pi	romelas. A summary of the test results from 2008	- 2011 are below.	
Year	C. dubia	D	promelas
	NOEC Survival NOEC Reproduction	NOEC Survival	NOEC Growth
		100%	100%
April 2008		100%	100%
April 2009			25%
April 2010	100%	100%	
Ocotber 2010 (1)	-	100%	50%
Ocotber 2010 (2)	1000/	100%	100%
April 2011	100% 100%	100%	100%
(1) Using Syntheic Freshwa			
(2) Using softened Synthetic	: Freshwater		
			i
	4		
VIII CONTRACT ANALYSIS	INFORMATION		
Were any of the analyses report		consulting firm?	
Were any of the analyses report	ed in Item V performed by a contract laboratory or o		to Section IV
Were any of the analyses report X YES (list	ed in Item V performed by a contract laboratory or c the name, address, and telephone number of, and		to Section IX)
Were any of the analyses report X YES (list	ed in Item V performed by a contract laboratory or o the name, address, and telephone number of, and nalyzed by, each such laboratory or firm below)	pollutants NO (go	,
Were any of the analyses report X YES (list	ed in Item V performed by a contract laboratory or c the name, address, and telephone number of, and	pollutants NO (go	to Section IX)  D. POLLUTANTS ANALYZED (list)
Were any of the analyses reports  X YES (list al	ed in Item V performed by a contract laboratory or or the name, address, and telephone number of, and nalyzed by, each such laboratory or firm below)  B. ADDRESS	pollutants NO (go C. TELEPHONE (area code & no.)	D. POLLUTANTS ANALYZED (list)
Were any of the analyses reports  X YES (list al	ed in Item V performed by a contract laboratory or of the name, address, and telephone number of, and nalyzed by, each such laboratory or firm below)  B. ADDRESS  7423 Lee Davis Rd., Mechanicsville, VA	pollutants NO (go	D. POLLUTANTS ANALYZED
Were any of the analyses reports  X YES (list al  A. NAME  Primary Laboratories Inc.	ed in Item V performed by a contract laboratory or of the name, address, and telephone number of, and nalyzed by, each such laboratory or firm below)  B. ADDRESS  7423 Lee Davis Rd., Mechanicsville, VA 23111	C. TELEPHONE (area code & no.) (804) 559-9004	D. POLLUTANTS ANALYZED (list) See Attachment D
Were any of the analyses reports  X YES (list al	ed in Item V performed by a contract laboratory or of the name, address, and telephone number of, and nalyzed by, each such laboratory or firm below)  B. ADDRESS  7423 Lee Davis Rd., Mechanicsville, VA	pollutants NO (go C. TELEPHONE (area code & no.)	D. POLLUTANTS ANALYZED (list)
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Were any of the analyses report  X YES (list al  A. NAME  Primary Laboratories Inc.  Pace Analytical	ed in Item V performed by a contract laboratory or of the name, address, and telephone number of, and nalyzed by, each such laboratory or firm below)  B. ADDRESS  7423 Lee Davis Rd., Mechanicsville, VA 23111	C. TELEPHONE (area code & no.) (804) 559-9004	D. POLLUTANTS ANALYZED (list) See Attachment D
Were any of the analyses report  X YES (list al  A. NAME  Primary Laboratories Inc.  Pace Analytical  IX. CERTIFICATION	ed in Item V performed by a contract laboratory or of the name, address, and telephone number of, and nalyzed by, each such laboratory or firm below)  B. ADDRESS  7423 Lee Davis Rd., Mechanicsville, VA 23111  1638 Roseytown Rd., Greensburg, PA 15601	C. TELEPHONE (area code & no.)  (804) 559-9004  (724) 850-5600  ( ) ( ) ( )	D. POLLUTANTS ANALYZED (list) See Attachment D See Attachment D
A. NAME Primary Laboratories Inc. Pace Analytical  IX. CERTIFICATION I certify under penalty of law the	ed in Item V performed by a contract laboratory or of the name, address, and telephone number of, and nalyzed by, each such laboratory or firm below)  B. ADDRESS  7423 Lee Davis Rd., Mechanicsville, VA 23111  1638 Roseytown Rd., Greensburg, PA 15601	C. TELEPHONE (area code & no.)  (804) 559-9004  (724) 850-5600  (	D. POLLUTANTS ANALYZED (list) See Attachment D  See Attachment D  ervision in accordance with a system
A. NAME Primary Laboratories Inc.  Pace Analytical  IX. CERTIFICATION I certify under penalty of law the designed to assure that qualified.	ed in Item V performed by a contract laboratory or of the name, address, and telephone number of, and nalyzed by, each such laboratory or firm below)  B. ADDRESS  7423 Lee Davis Rd., Mechanicsville, VA 23111  1638 Roseytown Rd., Greensburg, PA 15601	C. TELEPHONE (area code & no.)  (804) 559-9004  (724) 850-5600  ( )  ( )  ( )  ( )  ed under my direction or suprmation submitted. Based or	D. POLLUTANTS ANALYZED (list) See Attachment D  See Attachment D  ervision in accordance with a system on my inquiry of the person or persons
A. NAME Primary Laboratories Inc.  Pace Analytical  IX. CERTIFICATION I certify under penalty of law the designed to assure that qualifie who manage the system or the system of the sys	ed in Item V performed by a contract laboratory or of the name, address, and telephone number of, and nalyzed by, each such laboratory or firm below)  B. ADDRESS  7423 Lee Davis Rd., Mechanicsville, VA 23111  1638 Roseytown Rd., Greensburg, PA 15601  and this document and all attachments were prepared personnel properly gather and evaluate the informations persons directly responsible for gathering the second of the se	C. TELEPHONE (area code & no.)  (804) 559-9004  (724) 850-5600  (     )  (     )  (     )  ed under my direction or supermation submitted. Based or the information, the information	D. POLLUTANTS ANALYZED (list) See Attachment D  See Attachment D  ervision in accordance with a system or my inquiry of the person or persons ion submitted is, to the best of my
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A. NAME Primary Laboratories Inc.  Pace Analytical  IX. CERTIFICATION I certify under penalty of law the designed to assure that qualifie who manage the system of the knowledge and belief, true, ac possibility of fine and imprisonment.	ed in Item V performed by a contract laboratory or of the name, address, and telephone number of, and nalyzed by, each such laboratory or firm below)  B. ADDRESS  7423 Lee Davis Rd., Mechanicsville, VA 23111  1638 Roseytown Rd., Greensburg, PA 15601  and this document and all attachments were prepared personnel properly gather and evaluate the inforthose persons directly responsible for gathering focurate, and complete. I am aware that there are ment for knowing violations.	C. TELEPHONE (area code & no.)  (804) 559-9004  (724) 850-5600  (     )  (     )  (     )  ed under my direction or supermation submitted. Based or the information, the information	D. POLLUTANTS ANALYZED (list) See Attachment D  See Attachment D  ervision in accordance with a system of my inquiry of the person or persons ion submitted is, to the best of my initing false information, including the
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A. NAME Primary Laboratories Inc. Pace Analytical  IX. CERTIFICATION I certify under penalty of law the designed to assure that qualifie who manage the system or the knowledge and belief, true, ac possibility of fine and imprisonme. A. NAME & OFFICIAL TITLE (ty.) Daniel G. Stoddard, Senior VI C. SIGNATURE	ed in Item V performed by a contract laboratory or of the name, address, and telephone number of, and nalyzed by, each such laboratory or firm below)  B. ADDRESS  7423 Lee Davis Rd., Mechanicsville, VA 23111  1638 Roseytown Rd., Greensburg, PA 15601  and this document and all attachments were prepared personnel properly gather and evaluate the information persons directly responsible for gathering curate, and complete. I am aware that there are ment for knowing violations.  pe or print)	C. TELEPHONE (area code & no.)  (804) 559-9004  (724) 850-5600  (     )  (     )  (     )  ed under my direction or supermation submitted. Based or the information, the information	D. POLLUTANTS ANALYZED (list)  See Attachment D  See Attachment D  ervision in accordance with a system of the person or persons in submitted is, to the best of my initing false information, including the  B. PHONE NO. (area code & no.) (804) 273-4390  D. DATE SIGNED
A. NAME Primary Laboratories Inc. Pace Analytical  IX. CERTIFICATION I certify under penalty of law the designed to assure that qualifie who manage the system or the knowledge and belief, true, ac possibility of fine and imprisonme. A. NAME & OFFICIAL TITLE (ty.) Daniel G. Stoddard, Senior VI C. SIGNATURE	ed in Item V performed by a contract laboratory or of the name, address, and telephone number of, and nalyzed by, each such laboratory or firm below)  B. ADDRESS  7423 Lee Davis Rd., Mechanicsville, VA 23111  1638 Roseytown Rd., Greensburg, PA 15601  and this document and all attachments were prepared personnel properly gather and evaluate the information persons directly responsible for gathering curate, and complete. I am aware that there are ment for knowing violations.  pe or print)	C. TELEPHONE (area code & no.)  (804) 559-9004  (724) 850-5600  (     )  (     )  (     )  ed under my direction or supermation submitted. Based or the information, the information	D. POLLUTANTS ANALYZED (list) See Attachment D  See Attachment D  ervision in accordance with a system of my inquiry of the person or persons ion submitted is, to the best of my nitting false information, including the  B. PHONE NO. (area code & no.) (804) 273-4390
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Graphic No: NB198B

**Attachment C: RO Filter Backwash Sampling Results** 

#### **Dominion North Anna: RO Backwash Detected Parameters**

		inion North Ar						
Metal (ug/L)*	2/7/13 MM Grab	2/7/13 MM 24 hr Comp	2/26/13 GAC 24 hr Comp	1	2/26/13 GAC Grab 1	2/26/13 GAC Grab 2	2/27/13 GAC 24 hr Comp	2/27/13 MM Grab
Oil & Grease (mg/L)	ND	NS	NS	8.4	5.2	ND	NS	NS
TSS (mg/L)	NS	17.2	15.2	5.2	67.6	308	15.6	10
Al	90	2240	1920	1050	6110	4810	2140	440
Ba	7	9	<20	<20	<20	<20	<20	<20
Cd	ND	ND	1	ND	ND	ND	ND	ND
Cu	1	3	7	5	11	9	6	5
Fe	ND	660	352	159	781	581	347	61
Mg	2340	2150	ND	ND	ND	ND	ND	ND
Mn	40	70	54	34	186	86	45	21
Mo	6	7	76	51	46	32	29	28
Ni	ND	ND	8	5	ND	11	9	7
Pb	ND	ND	7	ND	ND	ND	ND	1
Th	ND	ND	6	ND	ND	ND	ND	ND
Zinc	ND	11	ND	ND	ND	ND	ND	ND
AI, dissolved	ND	NS	NS	54	ND	ND	NS	52
Cu, dissolved	ND	NS	NS	4	4	4	NS	4
Mo, dissolved	6	NS	NS	41	33	36	NS	26
Ni, dissolved	ND	NS	NS	ND	ND	8	NS	7
Ba, dissolved	7	NS	NS	<20	<20	<20	NS	ND
Mn, dissolved	30	N5	NS	ND	ND	<20	NS	ND
TDS (mg/L)	NS	46.5	80	56	62	66	68	70
Hardness (mg/L)	22.23	23.94	17.3	14.4	22.1	NS	NS	NS
Ammonia	NS	80	50	N5	70	NS	NS	NS
Boron	NS	70	200	NS	NS	NS	NS	NS
COD (mg/L)	NS	8	18	NS	32	NS	NS	NS
Fluoride	NS	56	410	150	33	210	170	130
Chloride (mg/L)	NS	8.89	8.4	8.9	6.5	11.7	11.2	14
Nitrate Nitrite	NS	110	180	110	130	120	110	90
Nitrate	NS	110	180	110	130	120	110	90
Sulfate (mg/L)	NS	7.57	7.7	8.8	9.6	11.4	7.9	8
TKN	NS	380	580	N\$	960	NS	NS	NS
TOC	NS	4700	ND	N\$	ND	NS	NS	NS
Total Phosphorus	NS	40	30	NS	100	NS	NS	NS
Bromide	NS	170	200	NS	NS	NS NS	110	NS
Color (PCU)	NS	8	8	NS	NS	NS	NS NS	NS
Ethylbenzene	ND	ND	8	NS	ND	NS	NS	NS
Toluene	8	ND	11.7	N\$	ND	NS	N\$	NS
Fecal Coli. (MPN/100ml)	ND	NS	NS	NS	2	NS	NS	NS
	*	All concentration	ns in ug/L unless	otherwise	noted			

*	All concentrations in ug/L unless otherwise noted
ММ	Multimedia Filters
GAC	Granulated Activated Carbon Filters
ND	Non-detect
NS	Not sampled

### Field Parameters taken February 7, 2013

Temperature pH 7.6 C

TRC

6.45

Sulfite

<QL 0.64 mg/L

Attachment D: RO Filter Backwash Sampling Laboratory Data Sheets

#### DOMINION LABORATORY SERVICES

### 

REPORT PRODUCED ON 02/22/2013

Page 1 of 1

Sample Date: 02/07/2013

### ANALYSIS TEST RESULTS BY SAMPLE

Location: NORTH ANNA . . . Submitter: GLENN BISHOP

Dominion Laboratory Number: 408634 Description : RO BACKWASH Unit: 0

Parameter	R	esult
Oil and Grease, PPM	<	5.00
Phenol, PPM	<	0.01
Aluminum as Al, PPM		0.09
Antimony as Sb, ppb	<	1.
Arsenic as As, ppb	<	3.
Barium as Ba, ppb		7.
Beryllium as Be, ppb	<	0.2
Cadmium as Cd, ppb	<	0.3
Chromium as Cr, ppb	<	1.
Cobalt as Co, ppb	<	0.6
Copper as Cu, ppb Iron as Fe, PPM	<	1.
Lead as Pb, ppb	<	0.05 1.
Magnesium as Mg, PPM	_	2.34
Manganese as Mn, PPM		0.04
Mercury as Hg, ppb	<	0.2
Molybdenum as Mo, ppb	•	6.
Nickel as Ni, ppb	<	5.
Selenium as Se, ppb	<	2.
Silver as Ag, ppb	<	0.1
Thallium as Tl, ppb	<	0.2
Tin as Sn, ppb	<	5.
Titanium as Ti, ppb	<	2.
Zinc as Zn, PPM	<	0.010
Dis. Tl, ppb	<	0.2
Dis. Ti, ppb	<	2.
Dis. Sn, ppb Dis. Se, ppb	< <	5. 2.
Dis. Se, ppb Dis. Sb, ppb	<	4. 1.
Dis. Pb, ppb	<	1.
Dis. Ni, ppb	<	5.
Dis. Mo, ppb	•	6.
Dis. Hg, ppb	<	0.2
Dis. Cu, ppb	<	1.
Dis. Cr, ppb	<	1.
Dis. Co, ppb	<	0.6
Dis. Cd, ppb	<	0.3
Dis. Be, ppb	<	0.2
Dis. Ba, ppb		7.
Dis. As, ppb Dis. Ag, ppb	< <	3.
Dis. Ag, ppb Dis. Zn, PPM	<	0.1
Dis. Mn, PPM	`	$0.010 \\ 0.03$
Dis. Fe, PPM	<	0.05
Dis. Al, PPM	<	0.09
Dis. Mg, PPM	•	2.36
T-Hard. as CaCO3, PPM		22.23
·		

### DOMINION LABORATORY SERVICES

REPORT PRODUCED ON 02/22/2013

Page 1 of 1

#### ANALYSIS TEST RESULTS BY SAMPLE

Location: NORTH ANNA Submitter: GLENN BISHOP

Dominion Laboratory Number: 408635 Sample Date: 02/07/2013 Description : RO BACKWASH COMP Unit: 0

Parameter	R	esult
Ammonia as N, PPM Boron as B, PPM COD, PPM Fluoride as F, PPM NO3+NO2, PPM Sulfate as SO4, PPM TK Nitrogen as N, PPM TOC, PPM TSS, PPM		0.08 0.07 8.00 0.056 0.11 7.57 0.38 4.7
Total Phos. as P, PPM		0.04
Aluminum as Al, PPM Antimony as Sb, ppb	<	2.24
Arsenic as As, ppb	<	3.
Barium as Ba, ppb		9.
Beryllium as Be, ppb	<	
Cadmium as Cd, ppb	<	0.3
Chromium as Cr, ppb	<	1.
Cobalt as Co, ppb	<	0.6
Copper as Cu, ppb		3.
Iron as Fe, PPM Lead as Pb, ppb	<	0.66 1.
Magnesium as Mg, PPM	`	2.15
Manganese as Mr. PPM		0.07
Mercury as Hg, ppb	<	0.2
Molybdenum as Mo,ppb		7.
Nickel as Ni, ppb	<	5.
Selenium as Se, ppb	<	2.
Silver as Ag, ppb	<	
Thallium as Tl, ppb	<	
Tin as Sn, ppb	<	5.
Titanium as Ti, ppb Zinc as Zn, PPM	<	2.
T-Dis. Solids, PPM		$0.011 \\ 46.5$
Nitrate as N, PPM		0.11
Chloride as Cl, PPM		8.98
TPH-DRO, PPM	<	0.5
TPH-GRO, PPM	<	0.5
T-Hard. as CaCO3, PPM		23.94

## DOMINION LABORATORY SERVICES REPORT PRODUCED ON 02/22/2013

Page 1 of 1

#### ANALYSIS TEST RESULTS BY SAMPLE

Location: NORTH ANNA Submitter: GLENN BISHOP

Dominion Laboratory Number: 408636

Description : EQUIP BLANK

Unit: 0

Sample Date: 02/07/2013

Parameter	R 	esult .
Aluminum as Al, PPM Antimony as Sb, ppb Arsenic as As, ppb Barium as Ba, ppb Beryllium as Be, ppb Cadmium as Cd, ppb Chromium as Cr, ppb Cobalt as Co, ppb Copper as Cu, ppb Iron as Fe, PPM Lead as Pb, ppb Magnesium as Mg, PPM Manganese as Mn, PPM Mercury as Hg, ppb Molybdenum as Mo,ppb Nickel as Ni, ppb Selenium as Se, ppb Silver as Ag, ppb Thallium as Tl, ppb Tin as Sn, ppb Titanium as Ti, ppb	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	0.09 1.3.3. 0.2 0.3 1.0.6 1.0.05 1.0.02 0.2 1.5.2.
Zinc as Zn, PPM	<	0.010

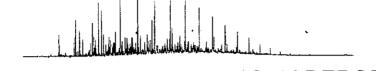
Station/Study: NA い)		WOH: 4/138	//			
Thermometer Used:			'			
61951674 or 61951693	·	Temp: <u>7. L</u>				
	Type of Ice:	~·····	one			
Chain of Custody Present	Yes	No	N/A			
Chain of Custody Filled Out	Yes	No	N/A			
Chain of Custody Relinquished	Nes	No	N/A			
Sampler Name on COC	Yes	No	N/A			
Samples Labels match COC	(Yes	No	N/A			
Includes date/time/ID/Analysis	(Yes	No	N/A			
All entries in Ink	Yes .	No	N/A			
Samples Arrived within Holding						
Time	Yes	No	N/A			
Short Hold Time Analysis (<72hr)	Yes	No	N/A			
Rush Turn Around Time Requested	Yes	(No	N/A			
Sufficient Volume	(Yek	No	N/A			
Correct Containers Used	Yes	No	N/A			
Containers Used: (circle)	NH3	Solids	086			
	POÈ	OPO4	ABN			
	IC	(DRO	Phenol			
	Hardness	Radioactivity	Volatiles			
		Metals (Tótal o				
	Other:	pase (dis (4 ocur o	Olssow Car			
# of Bottles on COC correct	Yes	No	N/A			
	- Caramana	,,,,	,			
Filtered Volume received for	G					
Dissolved Tests	(Yes	No	N/A			
:						
Custody Seal Intact	Yes	No	/ N/A			
Date/Time Received: 1/1/1/3	limber 17					
	C-C-C-	<del></del>	~ · · · · · · · · · · · · · · · · · · ·			
Date/Time Received: 2/1/13  Received by: D. Charte	/					
Received by.			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
Due Date on COC match	A TANK					
worksheet	(Yes)	No	N/A			
Tests Required on COC match	Janes 4					
	(Ye's					

LUCATION,	NORTH ARRIA	Requested by: WGB	Priority:	4 5
Required Date:	2/22//3	Phone:	Date Analy	ysis Complete: 7 LL 14 1
Comment:		Sampled by: WGB	Date Appr	oved Released: 1/1/1/
Bottle Types:	O/G=Oil and Grease, PT=Phonois To	tal, V=Volatiles, M=Metals, A=[Ammonia,TKN,TP,COD,N	NOyNO2], BCD=Blotogical Oxygen Demand	70011
		tal Suspended Solids, B.F, NO <sub>2</sub> /NO <sub>2</sub> , SO <sub>4</sub> , <del>TDS, Chloride</del> )		
	A®N≃Acid Base Neutrals, PF≃Pestici			Consider: 7.6°C
		e, S=Su:furic acid, N=Nilne acid, ZA=Zine acetate, SH=S	Sodium Hydroxide	Tomp (W+S) 6.45
Tests Required	1= C.G., Phenolitorat ,			TRC & DL
	2≃(Ammonia, TKN, TP, COD, NO	برد T, TOC , آیاNO <sub>r</sub> l , TOC ,	NOTE:	Sulfite
	3= (TSS, 10S, 8, F, NO, NO, NO, N	trate N. Chiorides . SO.I		
		Fe,Mg,Mo,Mn,Sn,Ti,Sb,As,Be,Cd,Cr,Cu,Pb,Hg,Ni	i,Se,Ag,Tl,Zn + Hardness	0. 44mp/2

X - PLACE A Preservative			SAMPLES	S TO BI	SUE	MITTED	<del></del>		нсі	cs,s	HCIN	s		TAI	HCI					
System Lab Number	Sample x ID	Date	Sample Time	Comp	Grab				O/G	PT	N	A A	BOD	T PH	тос	TSS		P/P	Test Required	Notes
103674	Nanna RO Backwash	17/13	1435		х			F	1	1	2								1,4	
47 (11		20,5	1769- 1357	х				-	-		1	1		3	 1	1			2,3,4	1
476/11 4066/6	€x-3x4	2/7/13	1415		À						7	$\exists$			 H					CONS - METALY
											$\pm$	$oxed{\mathbb{H}}$								
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							 <u>}</u>		$\vdash$			П				$\dashv$				
								,,				$\square$						4		
Relinquished (Signature) Relinquished	by Willy			Date 2 /5-/		Time		Red (Sig	ceived qnaturi	by( e)	/l	ورو	lik	1,	Date 2			100	)O	Dominion Resources Laboratory Services
Kennquished (Signature)	uy.			Date		Time		Red (Sig	ceived gnature	by: e)					Date	1	lime			11202 Old Stage Road Chester, VA 23836

Laboratories, Inc

7423 Lee Davis Road, Mechanicsville, VA 23111 • Telephone (804) 559-9004 • Fax (804) 559-9306



### ANALYTICAL LABORATORY REPORT

21-Feb-13

Dominion Virginia Power Attn: Glenn Bishop 4111 Castlewood Road Richmond, Va. 23234

Date Received:

7-Feb-13

Date Sampled:

Work Order No:

1302068-01

Client ID:

Nanna RO Backwash

OHOHEID.	indilling 170 ma	V::1140:11				
Test Description	Final Result	Reporting Limit	Units of Measure	Method Numbers*	Date Analyzed	Tech.
			,,	4500015	44.5-1-40	11)/
Cyanide	<0.010	0.010	mg/L	4500CN E	11-Feb-13 at 8:30	HV
E Coli	<1.0	1.0	MPN/100mi	9223 B	7-Feb-13	MS
Fecal Coliform	<2	2	MPN/100ml	9221E	7-Feb-13	MS
	•					

Date Received:

7-Feb-13

Units of Measure:

ug/L

Method Numbers\*:

EPA 624

Date Analyzed:

15-Feb-13

Technician:

PB

Date Sampled: Work Order No:

1302068-01

Client ID:

Nanna RO Backwash

Official.	Hailia NO Dackwasii					
Test	Final	Reporting				
Description	Result	Limit				
Acrolein	<5.0	5.0				
Acrylonitrile	<5.0	5.0				
Benzene	<5.0	5.0				
Bromoform	<5.0	5.0				
Carbon tetrachloride	<5.0	5.0				
Chlorobenzene	<5.0	5.0				
Chloroethane	<5.0	5.0				



21-Feb-13

Date Received:

7-Feb-13

Units of Measure:

ug/L

Method Numbers\*:

EPA 624 (con't)

Date Analyzed:

15-Feb-13

Technician:

PΒ

Date Sampled: Work Order No:

1302068-01

Client ID:

Nanna RO Backwash

CHERLID.	Namila KO Dackwasii						
Test	Final	Reporting					
Description	Result	Limit					
2-Chloroethylvinyl ether	<5.0	5.0					
Chloroform	<5.0	5.0					
Dichlorobromomethane	<5.0	5.0					
Methyl Bromide	<5.0	5.0					
Methyl Chloride	<5.0	5.0					
Chlorodibromomethane	<5.0	5.0					
cis-1,3-Dichloropropene	<5.0	5.0					
trans-1,3-Dichloropropene	<5.0	5.0					
1,2-Dichlorobenzene	<5.0	5.0					
1,3-Dichlorobenzene	<5.0	5.0					
1,4-Dichlorobenzene	<5.0	5.0					
1,1-Dichloroethane	<5.0	5.0					
1,2-Dichloroethane	<5.0	5.0					
1,1-Dichloroethylene	<5.0	5.0					
1,2-Trans-Dichloroethylene	<5.0	5.0					
1,2-Dichloropropane	<5.0	5.0					
Ethylbenzene	<5.0	5.0					
Methylene Chloride	<5.0	5.0					
1,1,2,2-Tetrachloroethane	<5.0	5.0					
Tetrachloroethylene	<5.0	5.0					
Toluene	8.0	5.0					
1,1,1-Trichloroethane	<5.0	5.0					
1,1,2-Trichloroethane	<5.0	5.0					
Trichloroethylene	<5.0	5.0					
Vinyl Chloride	<5.0	5.0					



21-Feb-13

Date Sampled:

Work Order No:

1302068-02

Client ID:

Nanna RO Backwash

Cilent ID.	Nanna KO Bac	kwasn				
Test	Final	Reporting	Units of	Method	Date	Tech.
Description	Result	Limit	Measure	Numbers*	Analyzed	Initials
Hydrogen Sulfide	<0.05	0.05	mg/L	376.1	14-Feb-13 at 10:00	HV
Trivalent Chromium	<0.020	0.020	mg/L	3120 B	19-Feb-13	HV
Hexavalent Chromium	<0.005	0.005	mg/L	3500	8-Feb-13 at 11:00	NA
Bromide	0.17	0.10	mg/L	EPA 300.0	13-Feb-13	ML
Color @ pH - 7.83	8.0	5.0	PCU	2120 B	at 10:28 7-Feb-13 at 15:00	NA
Sulfide	<0.05	0.05	mg/L	4500S <sup>2</sup> -E	14-Feb-13	NA
MBAS	<0.100	0.100	mg/L	5540C	at 10:00 11-Feb-13 at 16:00	AC

AC- Analytics Corporation ML - Microbac Laboratories

\* All methods are Standard Methods 18th Edition unless otherwise noted. Note: All analyses are NELAC certified except where noted with a (#).

Signature

Parry L/Bragg Laboratory Manager

These analytical results are based upon materials provided by the client and are intended for the exclusive use of the client. These analytical results represent the best judgement of Primary Laboratories, Inc. Primary Laboratories, Inc. assumes no responsibility, express or implied, as to the interpretation of the analytical results contained in this report. This report is not to be reproduced except with the written approval of Primary Laboratories. Inc.



Location:		Priority:
		Date Analysis Complete:
Comment:	Sampled by:	Date Approved Released:

Bottlio Types: Cn=Cyanido, FC=Fecals, EC = E coli, H<sub>2</sub>S = Hydrogen sulfide, Asb = Asbestos, 80D=Blotogical Oxygen Demand

P:P=Fest cide / PCBs, TST = Tributyfile, R = Radioactivity, Br = Bromide, Color, Sul = sulfide, Sur = Surfactants, DS = 0 oxin screen

Preservatives: HCI=Hydrochloric acid, CS=Cu Sulfate, S=Sulfutic acid, N=Nitric acid, ZA=Zinc acetate, SH=Sodium Hydroxide

Tests Required 1= Cn. Volatifes, Fecal coliforms, £. coli.

25 H., S., ABN, Asbestos, BOD, Pest / PCBs, TST, Nonylphonol. [1,2,Diphenylhydrazine]

3 = Cr3, Cr6

4= [Br. Color], Sulfide, Surfactants

1302068

	5= Dioxir	screen																								
X - PLACE A	IT NI "X" N	E BOX FO	OR SAM	<b>NPLES</b>	S TO B	E SUE	BMITTED			T																}
Preservative					_					sн			ZA,SH									7A,SH				
System Lab Number	Sample x ID	Sample Date	Sar Tim	mpla ne	Сотр		ΰ	Dechlor cont irmed?	[Cn]	_	Vol	EC +/- FC	,∕ H₂S	ABN +/_Asb	BOĐ	P/P	<b>18</b> 7	Nonylphenol	1,2,Diphenylhydrazine	crs. cre	Br. Cotor	Sul	Sut	DS	Test Required	Notes
	Nanna RC					x	Pes / Nog	Yes / No	Pcs / Neg	L	2	2		<u> </u>	<u> </u>								$\sqcup$	H	1	
	Backwa	ah l	17	5 v2					İ		 													4 .		
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Relinquished (Signature) Relinquished	[N/h				Date Date		Time /	645			Rec	eived		VE		الوب		Date 2. Date	7),	<b>)</b>	Time Time		<u>ч</u> у	لنا		Primary Laboratories 7423 Lee Davis Road Mechanicsville, VA 23111
(Signature)											(Sig	natur	5													804-559-9004

Primary Laboratories, Inc.

7423 Lec Davis Road, Mechanicsville, VA 23111 • Telephone (804) 559-9004 • Fax (804) 559-9306



### ANALYTICAL LABORATORY REPORT

28-Feb-13

Dominion Virginia Power Attn: Glenn Bishop 4111 Castlewood Road Richmond, Va. 23234

Date Received:

8-Feb-13

Date Sampled:

8-Feb-13

Work Order No:

1302082-01

Client ID:

Nanna RO Backwash

Cheff ID.	Maillia NO Day	Natitia NO Dackwasii													
Test	Final	Reporting	Units of	Method	Date	Tech.									
Description	Result	Limit	Measure	Numbers*	Analyzed	Initials									
BOD	<3.0	3.0	mg/L	5210 B	8-Feb-13	NΑ									
					at 16:45	ļ									
TributyItin	<0.03	0.03	ug/L	GC/FPD	19-Feb-13	UL									
		1			at 23:19										
Nonylphenol	<5	5	ug/L	D7065-06	27-Feb-13	JRA									
		1													

Date Sampled:

8-Feb-13

Work Order No:

1302082-01

Client ID:

Nanna RO Backwash

Ondricad.	Manna NO Dao	nwasi.				
Test	Final	Reporting	Units of	Method	Date	Tech
Description	Result	Limit	Measure	Numbers*	Analyzed	Initials
Organophosphorus						
Pesticides						
Chlorpyrifos	<0.2	0.2	ug/L	EPA 622	14-Feb-13	JRA
Demeton	<1	1	ug/L	EPA 614	14-Feb-13	JRA
Guthion	<1	1	ug/ <b>L</b>	EPA 622	14-Feb-13	JRA
Malathion	<1	1	ug/L	EPA 614	14-Feb-13	JRA
Parathion	<1	1	ug/L	EPA 614	14-Feb-13	JRA
Diazinon	<1	1	ug/L	EPA 614	14-Feb-13	JRA



28-Feb-13

Date Sampled:

8-Feb-13

Work Order No:

1302082-01

Client ID:	Nanna RO Baci	kwash				
Test	Final	Reporting	Units of	Method	Date	Tech.
Description	Result	Limit	Measure	Numbers*	Analyzed	Initials
Pesticides						
Aldrin	< 0.05	0.05	ug/L	EPA 608	13-Feb-13	UL
Chlordane	<0.20	0.20	ug/L	EPA 608	13-Feb-13	UL
Dieldrin	<0.05	0.05	ug/L	EPA 608	13-Feb-13	UL
4,4-DDT	< 0.05	0.05	ug/L	EPA 608	13-Feb-13	UL
4,4-DDE	<0.10	0.10	ug/L	EPA 608	13-Feb-13	UL
4,4-DDD	<0.10	0.10	u <b>g/L</b>	EPA 608	13-Feb-13	UL
Endosulfan sulfate	< 0.05	0.05	ug/L	EPA 608	13-Feb-13	UL
Endosulfan I	<0.05	0.05	ug/L	EPA 608	13-Feb-13	UL
Endosulfan II	<0.05	0.05	ug/L	EPA 608	13-Feb-13	UL
Endrin	< 0.05	0.05	ug/L	EPA 608	13-Feb-13	UL
Endrin Aldehyde	<0.50	0.50	ug/L	EPA 608	13-Feb-13	UL
Alpha-BHC	<0.10	0.10	ug/L	EPA 608	13-Feb-13	UL
Beta-BHC	<0.10	0.10	ug/L	EPA 608	13-Feb-13	UL
Delta-BHC	<0.10	0.10	ug/L	EPA 608	13-Feb-13	UL
Gamma-BHC (Lindane)	<0.05	0.05	ug/L	EPA 608	13-Feb-13	UL
Heptachlor	<0.05	0.05	ug/L	EPA 608	13-Feb-13	UL
Heptachlor Epoxide	<0.10	0.10	ug/L	EPA 608	13-Feb-13	UL
Kepone	<10	10	ug/L	EPA 608	13-Feb-13	UL
Methoxychlor	<0.10	0.10	ug/L	EPA 608	13-Feb-13	UL
Mirex	<0.20	0.20	ug/L	EPA 608	13-Feb-13	UL
Toxaphene	<1	1	ug/L	EPA 608	13-Feb-13	UL
PCB-1016	<0.5	0.5	ug/L	EPA 608	13-Feb-13	UL
PCB-1221	<0.5	0.5	ug/L	EPA 608	13-Feb-13	UL
PCB-1232	<0.5	0.5	ug/L	EPA 608	13-Feb-13	UL
PCB-1242	<0.5	0.5	ug/L	EPA 608	13-Feb-13	UL
PCB-1248	<0.5	0.5	ug/L	EPA 608	13-Feb-13	UL
PCB-1254	<0.5	0.5	ug/L	EPA 608	13-Feb-13	UL
PCB-1260	<0.5	0.5	ug/L	EPA 608	13-Feb-13	UL
Total PCB	<0.5	0.5	ug/L	EPA 608	13-Feb-13	UL
1	1	I .	I .	1	I	}



28-Feb-13

Method Numbers\*: EPA 624
Units of Measure: ug/L
Date Analyzed: 15-Feb-13
Technician: PB
Date Sampled: 8-Feb-13
Work Order No: 1302082-01

Client ID:	Nanna RO Backwash					
Test	Final	Reporting				
Description	Result	Limit				
Acrolein	<5.0	5.0				
Acrylonitrile	<5.0	5.0				
Benzene	<5.0	5.0				
Bromoform	<5.0	5.0				
Carbon tetrachloride	<5.0	5.0				
Chlorobenzene	<5.0	5.0				
Chloroethane	<5.0	5.0				
2-Chloroethylvinyl ether	<5.0	5.0				
Chloroform	<5.0	5.0				
Dichlorobromomethane	<5.0	5.0				
Methyl Bromide	<5.0	5.0				
Methyl Chloride	<5.0	5.0				
Chlorodibromomethane	<5.0	5.0				
cis-1,3-Dichloropropene	<5.0	5.0				
trans-1,3-Dichloropropene	<5.0	5.0				
1,2-Dichlorobenzene	<5.0	5.0				
1,3-Dichlorobenzene	<5.0	5.0				
1,4-Dichlorobenzene	<5.0	5.0				
1,1-Dichloroethane	<5.0	5.0				
1,2-Dichloroethane	<5.0	5.0				
1,1-Dichloroethylene	<5.0	5.0				
1,2-Trans-Dichloroethylene	<5.0	5.0				
1,2-Dichloropropane	<5.0	5.0				
Ethylbenzene	<5.0	5.0				
Methylene Chloride	<5.0	5.0				
1,1,2,2-Tetrachloroethane	<5.0	5.0				
Tetrachloroethylene	<5.0	5.0				
Toluene	<5.0	5.0				
1,1,1-Trichloroethane	<5.0	5.0				
1,1,2-Trichloroethane	<5.0	5.0				
Trichloroethylene	<5.0	5.0				
Vinyl Chloride	<5.0	5.0				



28-Feb-13

Method Numbers\*:

EPA 625

Units of Measure:

ug/L

Date Analyzed:

18-Feb-13

Technician:

UL

Date Sampled:

Work Order No:

8-Feb-13 1302082-01

Client ID:	Nanna RO Back	
Test	Final	Detection
Description	Result	Limit
Acenaphthene	<5.0	5.0
Acenaphthylene	<5.0	5.0
Anthracene	<5.0	5.0
Benzidine	<5.0	5.0
Benzo(a) anthracene	<5.0	5.0
Benzo(b) fluoranthene	<5.0	5.0
Benzo(k) fluoranthene	<5.0	5.0
Benzo(g,h,i) perylene	<5.0	5.0
Benzo(a)pyrene	<5.0	5.0
bis-(2-Chloroethoxy)methane	< 5.0	5.0
bis-(2-Chloroethyl)ether	<5.0	5.0
bis-(2-Chloroisopropyl)ether	<5.0	5.0
bis-(2-Ethylhexyl)phthalate	<5.0	5.0
4-Bromophenyl phenyl ether	<5.0	5.0
Butyl benzyl phthalate	<5.0	5.0
2-Chloronaphthalene	<5.0	5.0
Parachlorometa Cresol	<5.0	5.0
2-Chlorophenol	<5.0	5.0
4-Chlorophenyl phenyl ether	<5.0	5.0
Chrysene	<5.0	5.0
Dibenzo(a,h)anthracene	<5.0	5.0
Di-n-butyl phthalate	<5.0	5.0
3,3-Dichlorobenzidine	<5.0	5.0
2,4-Dichlorophenol	< 5.0	5.0
Diethyl phthalate	<5.0	5.0
2,4-Dimethylphenol	<5.0	5.0
Dimethyl phthalate	<5.0	5.0
4,6-Dinitro-o-cresol	<5.0	5.0
2,4-Dinitrophenol	<5.0	5.0
2,4-Dinitrotoluene	<5.0	5.0



28-Feb-13

Method Numbers\*:

EPA 625 (con't)

Units of Measure:

ug/L

Date Analyzed:

18-Feb-13

Technician:

UL

Date Sampled:

8-Feb-13

Work Order No:

1302082-01

Client ID:

Nanna RO Backwash

Client ID:	Nanna RO Back	(wash
Test	Final	Detection
Description	Result	Limit
2,6-Dinitrotoluene	<5.0	5.0
Di-n-octylphthalate	<5.0	5.0
1,2-Diphenylhydrazine	<5.0	5.0
Fluoranthene	<5.0	5.0
Fluorene	<5.0	5.0
Hexachlorobenzene	<5.0	5.0
Hexachlorobutadiene	<5.0	5.0
Hexachlorocyclopentadiene	<5.0	5.0
Hexachloroethane	<5.0	5.0
Indeno(1,2,3-cd) pyrene	<5.0	5.0
Isophorone	<5.0	5.0
Naphthalene	<5.0	5.0
Nitrobenzene	<5.0	5.0
2-Nitrophenol	<5.0	5.0
4-Nitrophenol	<5.0	5.0
N-Nitrosodimethylamine	<5.0	5.0
N-Nitrosodiphenylamine	<5.0	5.0
N-Nitrosodi-n-propylamine	<5.0	5.0
Pentachlorophenol	<5.0	5.0
Phenanthrene	<5.0	5.0
Phenol	<5.0	5.0
Pyrene	<5.0	5.0
1,2,4-Trichlorobenzene	<5.0	5.0
2,4,6-Trichlorophenol	<5.0	5.0
TCDD- Dioxin Screen	<5.0	5.0



28-Feb-13

Date Sampled:

8-Feb-13

Work Order No:

1302082-01

Client ID:

Nanna RO Backwash

Test	Final	Reporting	Units of	Method	Date	Tech.
Description	Result	Limit	Measure	Numbers*	Analyzed	Initials
HERBICIDES						
2,4-D	< 0.010	0.010	mg/L	SW-846 8151A	20-Feb-13	HV
2,4,5-TP	< 0.002	0.002	mg/L	SW-846 8151A	20-Feb-13	HV
			_			

JRA- James R. Reed & Associates **UL-** Universal Laboratories

Parry L. Bragg

Laboratory Manager

These analytical results are based upon materials provided by the client and are intended for the exclusive use of the client. These analytical results represent the best judgement of Primary Laboratories, Inc. Primary Laboratories, Inc. assumes no responsibility, express or implied, as to the interpretation of the analytical results contained in this report. This report is not to be reproduced except with the written approval of Primary Laboratories, Inc.



<sup>\*</sup> All methods are Standard Methods 18th Edition unless otherwise noted. Note: All analyses are NELAC certified except where noted with a (#).

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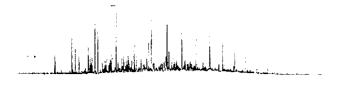
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### Primary Laboratories, Inc.

7423 Lee Davis Road, Mechanicsville, VA 23111 • Lelephone (804) 559-9004 • Fax (804) 559-9306



### ANALYTICAL LABORATORY REPORT

26-Mar-13

Dominion Virginia Power Attn; Glenn Bishop 4111 Castlewood Road Richmond, Va. 23234

Date Received:

26-Feb-13

Date Sampled:

26-Feb-13 1302254-01

Work Order No: Client ID:

GAC 24hr Backwash

Client ID:	GAC 24nr Bac	GAU 24hr Backwash													
Test	Final	Reporting	Units of	Method	Date	Tech.									
Description	Result	Limit	Measure	Numbers*	Analyzed	Initials									
Metals	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,														
Aluminum	1.920	0.050	mg/L	3120 B	6-Mar-13	HV									
Antimony	<0.100	0.100	mg/L	3120 B	6-Mar-13	HV									
Arsenic	< 0.050	0.050	mg/L	3120 B	6-Mar-13	ΗV									
Barium	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV									
Beryllium	<0.010	0.010	mg/L	3120 B	6-Mar-13	НУ									
Boron	<0.100	0.100	mg/l,	3120 B	6-Mar-13	HV									
Cadmaim	0.0010	0.0003	mg/L	3120 B	25-Mar-13	HV									
Chromium	<0.020	0 020	mg/L	3120 B	6-Mar-13	HV									
Cobalt	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV									
Copper	0.007	0.001	mg/L	3120 B	25-Mar-13	HV									
Iron	0.352	0.050	mg/L	3120 B	6-Mar-13	HV									
Lead	0.007	0.001	mg/L	3120 B	25-Mar-13	HV									
Magnesium	0.007	0.020	mg/L	3120 B	6-Mar-13	HV									
Manganese	0.054	0.020	mg/L	3120 B	6-Mar-13	HV									
Mercury	<0.0002	0 0002	mg/L	3112 B	6-Mar-13	HV									
Molybdenum	0.076	0.020	mg/L	3120 B	6-Mar-13	HV									
Nickel	0.008	0.005	mg/L	3120 B	25-Mar-13	HV .									
Selenium	<0.002	0.002	mg/L	3120 B	25-Mar-13	HV									
Silver	<0.0001	0.0001	mg/L	3120 B	25-Mar-13	HV									
Thallium	0.0060	0.0002	mg/L	3120 B	25-Mar-13	HV									
Tin	<0.080	0.050	mg/L	3120 B	6-Mar-13	HV									
Titanium	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV									
Zinc	<0.010	0.010	mg/L	3120 B	6-Mar-13	НV									
Hardness	17.3	1.0	mg/L	2340 C	14-Mar-13	NA									
			CaCO <sub>3</sub>		at 11:00										



26-Mar-13

Date Sampled: Work Order No: 26-Feb-13

Clion: ID:

1302254-01 GAC 24hr Backwash

Client ID:	GAC 24hr Back	wash				
Test	Final	Reporting	Units of	Method	Date	Tech.
Description	Resuit	Limit	Measure	Numbers*	Analyzed	Initiats
Ammonia	0.05	0.01	mg/L	4500NH <sub>3</sub> F	5-Mar-13 at 9:45	NA
TKN	0.58	0.20	mg/L	4500-N <sub>ərg</sub> C	7-Mar-13	NA
Total Phosphorus	0.03	0.01	mg/L	4500P E	at 13:30 1-Mar-13 at 11:00	NA
COD	18.0	2.0	mg/L	5520 C	1-Mar-13 at 10:00	ÑΑ
Nitrate/Nitrite	0.18	0.01	mg/L	4500 NO <sub>3</sub> E	6-Mar-13	NA
TPH, Diesel Range	<1	1	mg/L	3510/8015B (M)	at 13:30 28-Feb-13	HV
тос	<1.0	1.0	mg/L	5310 C	27-Feb-13 at 12:00	PB
TSS	15.2	1,0	mg/L	2540 D	28-Feb-13	HV
Hydrogen Suifide	<0.05	0.05	mg/L	376.1	€?-16M-8	HV
BOD	<2.0	2.0	mg/L	5210 B	27-Feb-13	₽₿
Tributyltin	<0.03	0.03	ug/L	GC/FPD	7-Mar-13 at 13:01	UL
Hexavalent Chromium	<0.005	0.005	mg/L	3500	26-Feb-13 at 16:00	P6
Bromide	0.20	0,10	គាg/L	EPA 300.0	8-Mar-13 20:05	ML
Color pH- 7.85	8.0	5.0	PCU	2120 B	20.03 27-Feb-13 at 11:00	NA



26-Mar-13

Date Sampled:

26-Feb-13

Work Order No:

1302254-01

From Order Ho.	1002204 01								
Client I.D:	GAC 24hr Baci	GAC 24hr Backwash							
Test	Final	Reporting	Units of	Method	Date	Tech.			
Description	Result	Limit	Measure	Numbers*	Analyzed	Initials			
Sulfide	<0.05	0.05	mg/L	4500\$ <sup>2</sup> .E	4-Mar-13	NA			
Fluoride	0.41	0.10	mg/L	EPA 300.0	at 11:00 8-Mar-13	ML			
TDS	80	10	mg/L	2540 C	at 20:05 4-Mar-13	HV			
Nitrate	0.18	0.01	mg/L	4500 NO <sub>3</sub> TE	6-Mar-13	NA			
Chloride	8.4	1.0	mg/L	4500CL B	at 13:30 5-Mar-13 at 16:30	NA			
Sulfate	7.7	2.0	mg/L	4500SO <sub>2</sub> <sup>2</sup> E	4-Mar-13	NA			
TPH, Gasoline Range	<1.0	1.0	mg/L	8260	at 14:00 7-Mar-13	PB			



26-Mar-13

Date Received: 29-Nov-12
Units of Measure: ug/L
Method Numbers\*: EPA 624
Date Analyzed: 7-Mar-13
Technician: PB
Date Sampled: 26-Feb-13
Work Order No: 1302254-01

Client ID GAC 24hr Backwash

Client ID	GAC 24hr Backwash				
Test	Final	Reporting			
Description	Result	Limit			
Acrolein	<5.0	5.0			
Acrylanitrile	<5.0	5.0			
Benzene	<5.0	5.0			
Bromoform	<5.0	5.0			
Carbon tetrachloride	<5.0	5.0			
Chlorobenzene	<5.0	5.0			
Chloroethane	<5.0	5.0			
2-Chloroethylvinyl ether	<5.0	5.0			
Chloroform	<50	5.0			
Dichlorobromethane	<5.0	5.0			
Methyl Bromide	<5.0	5.0			
Methyl Chloride	<5.0	50			
Chlorodibromomethane	<5.0	5.0			
cis-1,3-Dichtoropropene	<5.0	5.0			
trans-1.3-Dichloropropene	<5.0	5.0			
1.2-Dichlorobenzene	<5.0	5.0			
1.3-Dichlorobenzene	<5.0	5.0			
1.4-Dichlorobenzene	<5.0	5.0			
1,1-Dichloroethane	<5.0	5.0			
1.2-Dichtoroethane	<5.0	5.0			
1.1-Dichloroethylene	<5.0	5.0			
1.2-Trans-Dichloroethylene	<5.0	5 0			
1,2-Dichloropropane	<5.₽	5.0			
Ethylbenzene	8.0	5.0			
Methylene Chloride	<5.0	5.0			
1,1,2,2-Tetrachloroethane	<5.G	5.0			
Tetrachloroethylene	<5.0	5.0			
Toluene	11.7	5.0			
1,1,1-Trichloroethane	<5.0	5.0			
1,1.2-Trichloroethane	<5.0	5.0			
Trichloroethylene	<5.0	5.0			
Vinyl Chloride	<5.0	5.C			



26-Mar-13

Date Sampled:

26-Feb-13 1302254-02

Work Order No:

Nanna RO Backwash

Client ID:	Nanna RO Bac	kwash				
Test	Final	Reporting	Units of	Method	Date	Tech.
Description	Result	Limit	Measure	Numbers*	Analyzed	Initials
Oil & Grease	8.4	5.0	mg/L	EPA 1664 A	27-Feb-13	ΗV
Nitrate/Nitrite	0.11	0.01	mg/L	4500 NO <sub>s</sub> E	6-Mar-13	NA
TSS	5.2	1.0	mg/L	2540 D	at 13:30 28-Feb-13	нν
Fluoride	0.15	0.10	mg/Ľ	EPA 300.0	19-Mar-13 at 2:30	ML
TDS	56	10	mg/L	2540 C	4-Mar-13	HV
Nitrate	9.11	0.01	mg/L	4500 NO <sub>3</sub> E	6-Mar-13 at 13:30	NΑ
Chloride	8.9	1.0	mg/L	4500CL 8	5-Mar-13 at 16:30	NA
Sulfate	3.8	2 0	mg/L	4500SO <sub>4</sub> <sup>2</sup> E	4-Mar-13	NA
Hardness	:4.4	10	mg/L CaCO <sub>5</sub>	2340 C	at 14:00 14-Mar-13 at 11:00	NA



26-Mar-13

Date Sampled:

26-Feb-13

Work Order No: Client ID:

1302254-02 Nanna RO Backwash

Client ID:	Nanna RO Bac	kwash				
Test	Final	Reporting	Units of	Method	Date	Tech.
Description	Result	Limit	Measure	Numbers*	Analyzed	Initials
Metals						
Aluminum	1.050	0 950	mg/L	3120 B	6-Mar-13	HV
Antimony	<0.100	0.100	mg/L	3120 B	6-Mar-13	HV
Arsenic	<0.050	0.050	mg/L	3120 B	6-Mar-13	HV
Barium	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV
Beryllium	<0.010	0.010	mg/L	3120 B	6-Mar-13	ΗV
Вогоп	<0.100	0.100	mg/L	3120 B	6-Mar-13	ΗV
Cadmium	<0.0003	0.0003	mg/L	3120 B	25-Mar-13	HV
Chromium	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV
Cobalt	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV
Copper	0.005	0.001	mg/L	3120 B	25-Mar-13	HV
Iron	0.159	0.050	mg/L	3120 B	6-Mar-13	HV
Lead	< 0.001	0.001	mg/L	3120 B	25-Mar-13	HV
Magnesium	<0.020	0 020	mg/L	3120 B	6-Mar-13	HV
Manganese	0.034	0.020	mg/L	3120 B	6-Mar-13	HV
Mercury	< 0.0002	0.0002	ing/L	31 <b>12 B</b>	6-Mar-13	HV
Molybdenum	0.051	0.020	mg/L	3120 B	6-Mar-13	HV
Nickel	0.005	0.005	mg/L	3120 B	25-Mar-13	ΗV
Selenium	< 0.002	0.002	mg/L	3120 B	25-Mar-13	H∨
Silver	<0.0001	0.0001	mg/L	3120 B	25-Mar-13	HV
Thallium	<0.0002	0.0002	mg/L	3120 B	25-Mar-13	ΗV
Tin	< 0.050	0.060	mg/L	3120 B	6-Mar-13	HV
Titanium	<0.020	0.020	mg/L	3120 B	6-Mar-13	ΗV
Zinc	<0.010	0.010	mg/L	3120 B	6-Mar-13	HV



26-Mar-13

Date Sampled: Work Order No: 26-Feb-13 1302254-02

Cliest ID:

Nanna RO Backwash

Client ID:	Nanna RO Back	kwash				
Test	Final	Reporting	Units of	Method	Date	Tech.
Description	Result	Limit	Measure	Numbers*	Analyzed	Initials
Metals, Dissolved			•			
Aluminum	0.054	0.050	mg/L	3120 B	6-Mar-13	HV
Antimony	<0.100	0.100	mg/L	3120 B	6-Mar-13	HV
Arsenic	<0.050	0.050	mg/L	3120 B	6-Mar-13	HV
Barium	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV
Beryllium	<0.010	0.010	mg/L	3120 B	6-Mar-13	HV
Boron	< 0.100	0.100	mg/ <b>L</b>	3120 B	6-Mar-13	H∀
Cadmium	<0.0003	0.0003	mg/L	3120 B	25-Mar-13	HV
Chromium	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV
Cobalt	< 0.020	0.020	mg/L	3120 <b>B</b>	6-Mar-13	HV
Copper	0.004	0.001	mg/L	3120 B	25-Mar-13	HV
Iron	< 0.050	0.050	mg/L	3120 B	6-Mar-13	HV
Lead	< 0.001	0 001	mg/l,	3120 B	25-Mar-13	HV
Magnesium	< 0.020	0.020	mg/L	3120 B	6-Mar-13	HV
Manganese	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV
Mercury	<0.0002	0.0002	mg/L	3112 B	6-Mar-13	H∀
Molybdenum	0.041	0.020	mg/L	3120 B	6-Mar-13	∺V
Nickel	<0.005	0.005	mg/L	3120 B	25-Mar-13	HV
Selenium	< 0.002	0.002	mg/L	3120 B	25-Mar-13	HV
Silver	<0.0001	0.0001	mg/L	3120 B	25-Mar-13	HV
Thallium	< 0.0002	0.0002	mg/l,	3120 B	25-Mar-13	HV
Tin	<0.050	0.050	mg/L	3120 B	6-Mar-13	HV
Trianium	<0.020	0.020	mg/L	3120 B	5-Mar-13	ΗV
Zinc	<0.030	0.010	mg/L	3120 B	5-Mar-13	ΗV
	l					



26-Mar-13

Date Sampled: Work Order No:

26-Feb-13 1302254-03 GAC Bkwash1

Client ID:	GAC Bkwash1					
Test	Final	Reporting	Units of	Method	Date	Tech.
Description	Result	Limit	Measure	Numbers'	Analyzed	Initials
Oil & Grease	5.2	5.0	mg/L	EPA 1664 A	27-Feb-13	нV
Phenois	<0.05	0.05	mg/L	5530B C	11-Mar-13 at 14:00	NA
Ammonia	0.07	0.10	mg/L -	4500NH <sub>3</sub> F	5-Mar-13 at 9:45	NA
TKN	0.96	0.20	mg/L	4500-N <sub>erg</sub> C	7-Mar-13 at 13:30	NA
Total Phosphorus	0.10	0.01	mg/L	4500P E	1-Mar-13 at 11:00	NA
COD	32.0	10.0	mg/L	5520 C	1-Mar-13 at 10:00	NA
Nitrate/Nitrite	0,13	0.01	mg/l	4500 NO <sub>3</sub> 1E	6-Mar-13 at 13:30	NA
TPH, Diesel Range	<1	1	mg/L	3510/8015B (M)	28-Feb-13	HV
тос	<1.0	1.0	mg/L	5310 C	27-Feb-13 at 12.00	PB
TSS	67 <b>6</b>	1.0	mg/L	2540 D	28-Feb-13	HV
Cyanide	<0.010	0.010	mg/L	4500CN E	7-Mar-13	HV
£ Coli	<1.0	10	MPN/100ml	9223 B	26-Feb-13 at 16:15	MS
Fecal Coliform	2	2	MPN/100ml	9221E	26-Feb-13 at 16:15	MS
Fluoride	0.33	0.10	mg/L	EPA 300.0	8-Mar-13 at 20:17	ML



26-Mar-13

Date Sampled: Work Order No: 26-Feb-13 1302254-03

Client ID:

GAC Bkwash1

ONC DAWASIII					
Final	Reporting	Units of	Method	Date	Tech.
Result	Limit	Measure	Numbers*	Analyzed	Initials
62	10	mg/L	2540 C	4-Mar-13	HV
0.13	0.01	mg/L	4500 NO <sub>3</sub> E	6-Mar-13	NA
6.5	1.0	mg/L	4500CL B	at 13:30 5-Mar-13	NA
9.6	2.0	mg/L	4500SO <sub>4</sub> <sup>2</sup> E	4-Mar-13	NA
22.1	1.0	mg/L	2340 C	14-Mar-13	NA
<*,D	1.0	CaCO₃ mg/L	8260	at 11:00 7-Mar-13	PB
	Final Result 62 0.13 6.5 9.6 22.1	Final Reporting Limit  62 10  0.13 0.01  6.5 1.0  9.6 2.0  22.1 1.0	Final Reporting Result         Reporting Limit         Units of Measure           62         10         mg/L           0.13         0.01         mg/L           6.5         1.0         mg/L           9.6         2.0         mg/L           22.1         1.0         mg/L           CaCO <sub>3</sub>	Final Result         Reporting Limit         Units of Measure         Method Numbers*           62         10         mg/L         2540 C           0.13         0.01         mg/L         4500 NO <sub>3</sub> * E           6.5         1.0         mg/L         4500CL B           9.6         2.0         mg/L         4500SO <sub>4</sub> *E           22.1         1.0         mg/L         2340 C           CaCO <sub>3</sub> CaCO <sub>3</sub> CaCO <sub>3</sub>	Final Result         Reporting Limit         Units of Measure         Method Numbers*         Date Analyzed           62         10         mg/L         2540 C         4-Mar-13           0.13         0.01         mg/L         4500 NO <sub>3</sub> E         6-Mar-13 at 13:30           6.5         1.0         mg/L         4500 CL B         5-Mar-13 at 16:30           9.6         2.0         mg/L         4500 SO <sub>4</sub> E         4-Mar-13 at 14:00           22.1         1.0         mg/L         2340 C         14-Mar-13 at 11:00



26-Mar-13

Date Sampled: Work Order No: 26-Feb-13

1302254-03 GAC Bkwash1

Client ID:	GAC Bkwash1					
Test	Final	Reporting	Units of	Method	Date	Tech.
Description	Result	Limit	Measure	Numbers*	Analyzed	Initials
Metals						
Aluminum	6.110	0.050	mg/L	3120 B	6-Mar-13	HV
Antimony	< 0.100	0.100	mg/L	3120 B	6-Mar-13	HV
Arsenic	<0.050	0.050	mg/L	3120 B	6-Mar-13	HV
Barium	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV
Beryllium	<0.010	0.010	mg/L	3120 B	6-Mar-13	HV
Boron	<0.100	0.100	mg/L	3120 8	6-Mar-13	HV
Cadmium	< 0.0003	0.0003	mg/L	3120 B	25-Mar-13	HV
Chromium	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV
Cobalt	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV
Copper	0.011	0.001	mg/L	3120 B	25-Mar-13	HV
Iron	0.781	0.050	mg/t_	3120 B	6-Mar-13	ΗV
Lead	<0.001	0 001	mg/L	3120 B	25-Mar-13	ΗV
Magnesium	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV
Manganese	0.186	0.020	mg/L	3120 B	6-Mar-13	HV
Mercury	<0.0002	0.0002	mg/L	3112 B	6-Mar-13	ΗV
Molybdenum	0.046	0.020	mg/L	3120 B	6-Mar-13	ΗV
Nickel	<0.005	0.005	mg/L	3120 B	25-Mar-13	HV
Selenium	<0.002	0.002	mg/L	3120 B	25-Mar-13	HV :
Säver	<0,0001	0.0001	mg/L	3120 B	25-Mar-13	HV
Thattium	<0.0002	0.0002	mg/L	3120 B	25-Mar-13	HV
Tin	<0.050	0.050	mg/L	3120 B	6-Mar-13	H∀
Titanium	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV
Zinc	< 0.010	9.010	mg/L	3120 B	6-Mar-13	HV
						t-managed of



26-Mar-13

Date Sampled: Work Order No:

26-Feb-13 1302254-03

Client ID:

GAC Bkwash1

Client ID:	GAC Bkwash1					
Test	Fina!	Reporting	Units of	Method	Date	Tech.
Description	Result	Limit	Measure	Numbers*	Analyzed	Initials
Metals, Dissolved						
Aluminum	<0.050	0.050	mg/L	3120 B	6-Mar-13	HV
Antimony	<0.100	0.100	mg/L	3120 8	6-Mar-13	HV
Arsenic	<0.050	0.050	mg/L	3120 B	6-Mar-13	HV
Barium	<0.020	0.020	mg/L	3120 B	6-Mar-13	ΗV
Beryllium	<0.010	0.010	mg/L	3120 B	6-Mar-13	ΗV
Boron	<0.100	0.100	mg/L	3120 B	6-Mar-13	ΗV
Cadmium	<0.0003	0.0003	mg/L	3120 B	25-Mar-13	HV
Chromium	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV
Cobalt	<0.020	0.020	mg/L	3120 B	6-Mar-13	ΗV
Copper	0.004	0.001	mg/L	3120 B	25-Mar-13	HV
Iron	<0.050	0.050	mg/L	3120 B	6-Mar-13	HV
Lead	<0.001	0.001	mg/L	3120 B	25-Mar-13	HV
Magnesium	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV
Manganese	<0.020	0.020	mg/L	3120 B	6-Mar-13	ΗV
Mercury	<0.0002	0.0002	mg/L	3112 B	6-Mar-13	ΗV
Malybdenum	0 033	0.020	mg/L	3120 B	6-Mar-13	HV
Nicket	<0.005	0.005	mg/L	3120 B	25-Mar-13	HΛ
Sclenium	<0.002	0,002	mg/L	3120 B	25-Mar-13	HV
Silver	<0.0001	0.3001	mg/L	3120 B	25-Mar-13	HV
Thallium	<0.0002	0.0002	mg/L	3120 B	25-Mar-13	HV
∃∍ਜ	<0.050	0.050	rng/l,	3120 B	6-Mar-13	HV
Titanium	<0.020	0.020	rng/L	3120 B	6-Mar-13	HV
Zinc	<0.010	0.010	mg/L	3120 B	6-Mar-13	HV



26-Mar-13

Date Received: 26-Feb-13
Units of Measure: ug/L
Method Numbers\*: EPA 624
Date Analyzed. 7-Mar-13
Technician PB
Date Sampled: 26-Feb-13
Work Order No: 1392254-03

Client ID:	GAC Bkwash1	
Test	Final	Reporting
Description	Result	Limit
Acrolein	<5.Û	5.0
Acrylonitrile	<5.0	5.0
8enzene	<5.0	5.0
Bromoform	<5.0	5.0
Carbon tetrachloride	<5.0	5.0
Chlorobenzene	<5.0	5.0
Chloroethane	<5.0	5.0
2-Chloroethylv:nyl ether	<5.0	5.0
Chloraform	<5.0	5.0
Dichlorobromomethane	<5.0	5.0
Methyl Bromide	<5.0	5.0
Methyl Chloride	<5.0	5.0
Ch/orodibromomernane	<5.0	5.0
cis-1,3-Dichloropropene	<5.0	5.0
trans-1,3-Dichloropropene	<5.0	5.Q
1,2-Dichlorobenzene	<5.0	5.0
1,3-Dichlorobenzene	<5.0	5.0
1,4-Dichlorobenzene	<5.0	5.0
1.1-Dichloroethane	<5.0	50
1,2-Dichloroethane	<5.0	5.0
1.1-Dichloroethylene	<5.0	5.0
1 2-Trans-Dichloroethylene	<5.0	5.0
1.2-Dichloropropane	<5.0	5.0
Ethylbenzene	<5.0	5.0
Methylene Chloride	<5.0	5.0
1,1,2,2-Tetrachloreethane	<5.0	5.0
Tetrachioroethylene	<5.0	5.0
Toluene	<5.0	5.0
1,1,1-Trichloroethane	<5.0	5.0
1.1.2-Trichloroethane	<5.0	5.0
Trichloroethylene	<5.0	5.0
Vinyl Chloride	<5.0	5.0



26-Mar-13

Date Sampled:

26-Feb-13 1302254-04

Work Order No:

GAC Rkwash2

Client ID:	GAC Bkwash2					
Test	Final	Reporting	Units of	Method	Date	Tech.
Description	Result	Limit	Measure	Numbers*	Analyzed	Initials
Oil & Grease	<5.0	5.0	mg/L	EPA 1664 A	27-Feb-13	HV
Nitrate/Nitrite	0.12	0.01	mg/L	4500 NO <sub>3</sub> 1E	6-Mar-13	NA
TSS	308.0	7,0	mg/L	2540 D	at 13:30 28-Feb-13	H∨
Fluoride	0.21	0.10	mg/L	EPA 300.0	8-Mar-13	ML
TDS	66	10	mg/L	2540 C	at 20:29 4-Mar-13	н∨
Nitrate	0.12	0.01	rng/L	4500 NO <sub>3</sub> E	6-Mar-13	NA
Chloride	11.7	1,0	mg/L	4500GL B	at 13:30 5-Mar-13	NA
Sulfate	11.4	20	mg/l.	4500SO₄°E	at 16:30 4-Mar-13	NA
					at 14:00	



26-Mar-13

Date Sampled:

26-Feb-13 1302254-04

Work Order No:

1302254-04 GAC Bkwash2

Olient ID:	GAC Bkwash2	2				
Test	Final	Reporting	Units of	Method	Date	Tech.
Description	Resuit	Limit	Measure	Numbers*	Analyzed	Initials
Metals						
Aluminum	4.810	0.050	mg/L	3120 B	6-Mar-13	HV
Antimony	<0.100	0.100	mg/L	3120 B	6-Mar-13	HV
Arsenic	<0.050	0.050	mg/L	3120 B	6-Mar-13	HV
Barium	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV
Beryllium	<0.010	0.010	mg/L	3120 B	6-Mar-13	HV
Boron	< 0.100	0,100	mg/L	3120 B	6-Mar-13	HV
Cadmium	< 0.0003	0.0003	mg/L	3120 B	25-Mar-13	HV
Chromium	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV
Cobalt	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV
Copper	0.009	0.001	mg/L	3120 B	25-Mar-13	HV
Iron	0.581	0.050	mg/L	3120 B	6-Mar-13	ΗV
Lead	< 0.001	0.001	mg/L	3120 B	25-Mar-13	ΗV
Magnesium	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV
Manganese	0.086	0.020	mg/L	3120 B	6-Mar-13	HV
Mercury	< 0.0002	0.0002	mg/L	3112 B	6-Mar-13	ΗV
Molybdenum	0.032	0.020	mg/L	3120 8	6-Mar-13	HV
Nickel	0.011	0.005	mg/L	3120 B	25-Mar-13	HV
Seienium	< 0.002	0.002	mg/L	3120 B	25-Mar-13	ΗV
Silver	< 0.0001	0.0001	rng/L	3120 8	25-Mar-13	HV
Thallium	<0.0002	0.0002	mg/L	3120 B	25-Mar-13	HV
Tin	< 0.050	0,050	rng/L	3120 B	6-Mar-13	HV
Titanium	< 0.020	0.020	mg/L	3120 B	6-Mar-13	ΗV
Zinc	<0.010	0.010	mg/L	3120 B	6-Mar-13	HV
<del></del>						



26-Mar-13

Date Sampled:

26-Feb-13

Work Order No:

1302254-04 GAC Bkwash2

Ckent ID:	GAC Bkwash2	,				
Test	Final	Reporting	Units of	Method	Date	Tech
Description	Result	Limit	Measure	Numbers*	Analyzed	Initials
Metals, Dîssolved						
Aluminum	<0.050	0.050	mg/L	3120 B	6-Mar-13	HV
Antimony	<0.100	0.100	mg/L	3120 B	6-Mar-13	HV
Arsenic	<0.050	0.050	mg/L	3120 B	6-Mar-13	HV
Barium	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV
Beryllium	<0.010	0.010	mg/L	3120 B	6-Mar-13	HV
Boron	<0.100	0.100	mg/L	3120 B	6-Mar-13	HV
Cadmium	<0.0003	0.0003	mg/L	3120 B	25-Mar-13	HV
Chromium	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV
Cobalt	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV
Copper	9.004	0.001	mg/L	3120 B	25-Mar-13	HV
fron	<0.050	0.050	mg/L	3120 B	6-Mar-13	HV
Lead	<0.001	0.801	mg/L	3120 B	25-Mar-13	HV
Magnesium	< 0.020	0.020	mg/L	3120 B	6-Mar-13	HV
Manganese	<0.020	0.020	mg/L	3120 B	6-Mar-13	ΗV
Mercury	<0.0002	0.0002	mg/L	3112 B	6-Mar-13	HV
Molybdenum	0.036	0.020	mg/L	3120 B	6-Mar-13	HV
Nickel	0.008	0.005	:ng/L	3120 B	25-Mar-13	HV
Selenium	<0.002	0.002	mg/L	3120 B	25-Mar-13	HV
Silver	<0.0001	0.0001	mg/L	3120 B	25-Mar-13	HV
Thallium	<0.0002	0.0002	mg/L	3120 B	25-Mar-13	нν
Tin	<0.050	0.050	mg/L	3120 B	6-Mar-13	ΗV
Tstansum	<0.020	0.020	mg/L	3129 B	6-Mar-13	ΗV
Zinc	<0.010	9,010	mg/L	3120 B	6-Mar-13	ΗV



26-Mar-13

Date Sampled:

27-Feb-13 1302254-05

Work Order No: Client ID.

GAC 24hr Backwash

CIE:R ID.	GAC 24nr Back	Wash				
Test	Final	Reporting	Units of	Method	Date	Tech
Description	Result	Limit	Measure	Numbers*	Analyzed	Initials
Nitrate/Nitrite	0.11		mg/L	4500 NO <sub>3</sub> E	6-Mar-13 at 13:30	NA
TSS	15.6	10	mg/L	2540 D	28-Feb-13	HV
Bromide	0.11	0,10	mg/L	EPA 300 0	8-Mar-13 at 20:41	ML
Fluoride	0,17	0.10	mg/L	EPA 300.0	8-Mar-13	MŁ
TDS	68	10	mg/L	2540 C	at 20:41 4-Mar-13	ΗV
Nitrate	0.11	0.01	mg/L	4500 NO <sub>3</sub> E	6-Mar-13	NA
Chloride	11.2	1.0	mg/L	4500CL B	at 13:30 5-Mar-13 at 16:30	NA
Surfate	7.9	2.0	mg/L	4500SO <sub>2</sub> <sup>2</sup> E	4-Mar-13	NA
MBAS	<0.100	0 100	mg/L	554CC	at 14:00 6-Mar-13 at 13:30	AC
Nonylphenol	<5	5	ug/L	ASTM D7065-06	12-Mar-13	JRA
Asbestos	ND	0.89	MF/L	TEM	at 3:57 4-Mar-13	AS

ND - Not detected



26-Mar-13

Date Sampled: Work Order No:

27-Feb-13 1302254-05

Client ID.	GAC 24hr Backwash						
Test	Final	Reporting	Units of	Method	Date	Tech.	
Description	Result	Limit	Measure	Numbers*	Analyzed	Initials	
Metals							
Aluminum	2.140	0.050	mg/L	3120 B	6-Mar-13	HV	
Antimony	<0.100	0.100	mg/L	3120 B	6-Mar-13	HV	
Arsenia	<0.050	0.050	mg/L	3120 B	6-Mar-13	HV	
Barium	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV	
Beryllium	< 0.010	0.010	mg/L	3120 B	6-Mar-13	HV	
Boron	<0.100	0 100	mg/L	3120 B	6-Mar-13	HV	
Cadmium	< 0.0003	0.0003	mg/L	3120 B	25-Mar-13	ΗV	
Chromium	< 0.020	0.020	mg/L	3120 B	6-Mar-13	HV	
Cobalt	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV	
Copper	0.006	0.001	mg/L	3120 B	25-Mar-13	HV	
Iron	0.347	0.050	mg/L	3120 B	6-Mar-13	HV	
Lead	< 0.001	0.001	mg/L	3120 B	25-Mar-13	HV	
Magnesium	<0.020	0.020	mg/L	31 <b>2</b> 0 B	6-Mar-13	HV	
Manganese	0.045	0.020	mg/L	3120 B	6-Mar-13	H∨	
Mercury	< 0.0002	0.0002	mg/L	3112 B	6-Mar-13	HV	
Molybaenum	0.029	0.020	mg/L	3120 8	6-Mar-13	ŀ₩	
Nicke <sup>a</sup>	0.009	0.005	mg/L	3120 B	25-Mar-13	HV	
Selenium	<0.002	0.002	mg/L	3120 B	25-Mar-13	ΗV	
Silver	<0.0001	0.0001	mg/L	3120 B	25-Mar-13	HV	
Thallium	<0.0002	0.0002	mg/L	3120 B	25-Mar-13	HV	
Tin	<0.050	0.050	mg/l	3120 B	6-Mar-13	HV	
Titanium	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV	
Zinc	<0.010	0.010	mg/L	3120 B	6-Mar-13	HV	



#### Primary Laboratories, Inc. Results

26-Mar-13

Method Numbers\*: Date Analyzed:

EPA 625 7-Mar-13

Technician:

UL

Units of Measure: Date Sampled:

ug/L 27-Feb-13

Work Order No:

1302254-05

Client ID:	GAC 24hr Back	wash
Test	Final	Detection
Description	Result	Limit
Acenaphthene	<5.0	5.0
Acenaphthylene	<5.0	5.0
Anthracene	<5.0	5.0
Benzidine	<5.0	5.0
Benzo(a) anthracene	<5.0	5.0
Benzo(b) fluoranthene	<5.0	5.0
Benzo(k) fluoranthene	<5.0	5.0
Benzo(g,h,i) perylene	<5.0	5.0
Benzc(a)pyrene	<5.0	5.0
bis-(2-Chloroethoxy)methane	<5.0	5.0
bis-(2-Chloroethyl)ether	<5.0	5.0
bis-(2-Chloroisopropyl )ether	<50	5.0
bis-{2-Ethylhexy/)pht/halate	<5.0	5.0
4-Bromophenyl phenyl ether	<5.0	50
Butyl benzyl phthalate	<5.0	5.0
2-Chloronaphthalene	<5.0	5.0
Parachlorometa Cresol	<5.0	5.0
2-Chlorophenol	<5.0	5.0
4-Chlorophenyl phenyl ether	<5.0	50
Спгузепе	<5.0	5.0
Dibenzo(a,h)anthracene	<5.0	5.0
Di-n-butyl phthalate	<5.0	5.0
3.3-Dichlorobenzidine	<5.0	5.0
2,4-Dichtorophenal	⊴5.0	5.0
Diethyl phthalate	<5.0	5.0
2.4-Dimethylphenol	<5.0	5.0
Dimethy) phthalate	<5.0	5.0
4.6-Dinitro-o-cresol	<5.0	5.0
2,4-Dinitrophenol	<5.0	5.0
2,4-Dintrotoluene	<5.0	5.0



## Primary Laboratories, Inc. Results

26-Mar-13

Method Numbers\*: EPA 625 (con't)
Date Analyzed: 7-Mar-13
Technician: UL
Units of Measure: ug/L

Date Sampled: 27-Feb-13
Work Order No: 1302254-05

Client ID: GAC 24hr Backwash Test Detection Final Description Result Limit 2.6-Dinitrotoluene <5.0 5.0 <5.0 5.0 Di-n-octylphthalate 1,2-Diphenylhydrazine <5.0 5.0 Fluoranthene <5.0 5.0 Fluorene <5.0 5.0 5.0 Hexachlorobenzene <5.0 Hexachlorobutadiene < 5.0 5.0 <5.0 5.0 Hexachlorocyclopentadiene Hexachloroethane <5.Ω 5.0 <5.0 5.0 Indeno(1,2,3-cd) pyrene isophorone <5.0 5.0Naphthalene ≤5.0 5.0 Nitrobenzene <5.0 5.0 2-Nitrophenol < 5.0 5.0 4-Nitrophenol < 5.0 5.0 N-Nitrosodimethylamine <5.0 5.0 N-Nitrosodiphenylamine <5.0 5.0 N-Nitrosodi-n-propylamine <5.0 5.0 Pentachlorophenol < 5.0 5.0 Phenanthrene <5.0 5.0

<5.0

<5.0

<5.0

<5.0

Phenol

Pyrene

1,2,4-Trichlorobenzene

2.4.6-Trichlorophenol

VELAP# 460173 DCLS# 237



5.0

5.0

5.0

5.0

## Primary Laboratories, Inc. Results

26-Mar-13

EPA 614

13-Mar-13

JRA

Date Sampled:

27-Feb-13 1302254-05

Work Order No: Client ID:

GAC 24hr Backwash

Olievik ID.	CHARLES WALL CARCE	CHECOSI				
Test	Final	Reporting	Units of	Method	Date	Tech.
Description	Result	Limit	Measure	Numbers*	Analyzed	Initials
HERBICIDES			•			
2.4-D	<0.010	0.010	mg/L	SW-846 8151A	12-Mar-13	HV
2.4,5-TP	<0.002	0.002	mg/L	SW-846 8151A	12-Mar-13	HV

Date Sampled: Work Order No:

27-Feb-13

< 1

Client ID:

Diazinon

1302254-05 GAC 24hr Backwash

Test	Final	Reporting	Units of	Method	Date	Tech.
Description	Result	Limit	Measure	Numbers*	Analyzed	Initials
Organophosphorus						
Pesticides						
Chlorpyrifos	<0.2	0.2	ug/t.	EPA 622	13-Mar-13	JRA
Demeton	<1	1	ມg/L.	EPA 614	13-Mar-13	JRA
Guthion	<1	1	ug/L	EPA 622	13-Mar-13	JŔA
Matathion	<1	7	ug/L	EPA 614	13-Mar-13	JRA
Parathios	47	1	ug/L	EPA 514	13-Mar-13	JRA

1

ug/L



## Primary Laboratories, Inc. Results

26-Mar-13

Date Sampled:

27-Feb-13

Work Order No:

1302254-05 GAC 24hr Backwash

Client ID:	GAC 24hr Back					
Test	Final	Reporting	Units of	Method	Date	Tech.
Description	Result	Limit	Measure	Numbers*	Analyzed	Initials
Pesticides						
Aldrin	<0.05	0.05	ug/L	EPA 608	7-Mar-13	UL
Chlordane	<0.20	0.20	ug/L	EPA 608	7-Mar-13	UL
Dieldrin	<0.05	0.05	ug/L	EPA 608	7-Mar-13	UL
4,4-DDT	<0.05	0.05	ug/L	EPA 608	7-Mar-13	UL
4,4-DDE	<0.10	0.10	ug/L	EPA 608	7-Mar-13	UL
4,4-DDD	<0.10	0.10	ug/L	EPA 608	7-Mar-13	UL
Endosulfan sulfate	<0.05	0.05	ug/L	EPA 608	7-Mar-13	UL
Endosulfan I	<0.05	0.05	ug/L	EPA 608	7-Mar-13	UL
Endosulfan li	<0.05	0.05	ug/L	EPA 608	7-Mar-13	UL
Endrin	<0.05	0.05	ug/L	EPA 608	7-Mar-13	UL
Alpha-BHC	<0.10	0.10	ug/L	EPA 608	7-Mar-13	UL
Beta-BHC	<0.10	0.10	ug/L	EPA 608	7-Mar-13	UL
Delta-BHC	<0.10	0.10	ug/t,	EPA 608	7-Mar-13	UL
Gamma-BHC (Lindane)	<0.05	0.05	ug/L	EPA 608	7-Mar-13	UL
Heptachlor	<0.05	9.05	ug/L	EPA 608	7-Mar-13	ŲL
Endrin Aidehyde	<0.5	0.50	ug/L	EPA 608	7-Mar-13	UL
Heptachlor Epoxide	<0.18	0.10	ug/L	EPA 608	7-Mar-13	UL
Kapona	<10	10	ug/L	8270	7-Mar-13	UL
Methoxychtor	<0.10	0.10	ug/L	EPA 608	7-Mar-13	UL
Mirex	<0.20	0.20	ug/L	EPA 608	7-Mar-13	LJL.
Toxaphene	<10	10	ug/L	EPA 608	7-Mar-13	UL
PCB-1016	<0.5	0.5	ug/L	EPA 608	7-Mar-13	UL
PC8-1221	<0.5	0.5	ug/L	EPA 508 .	7-Mar-13	UL
PCB-1232	<0.5	0.5	ug/L	EPA 608	7-Mar-13	UL
PCB-1242	<0.5	0.5	ug/L	EPA 608	7-Mar-13	UL
PCB-1248	<0.5	0.5	ug/L	EPA 608	7-Mar-13	UL
PCB-1254	<0.5	0.5	រេថ្ន/L	EPA 608	7-Mar-13	UL
PCB-1260	<0.5	0.5	ug/L	EPA 608	7-Mar-13	nr
Total PCB	<0.5	0.5	ug/L	EPA 608	7-Mar-13	UL
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## Primary Laboratories, Inc. Results

26-Mar-13

Date Sampled:

27-Feb-13

Work Order No:

1302254-06

Client ID:

Nanna RO Backwash

CACIAL ID.	Hamila NO Dat	VKANOT213				
Test	Final Reporting		Units of	Method	Date	Tech.
Description	Result	Limit	Measure	Numbers*	Analyzed	Initials
Nitrate/Nitrite	0 09	0.61	mg/L	4500 NO <sub>3</sub> E	6-Mar-13 at 13:30	NA
TSS	10.0	1.0	mg/L	2540 D	28-Feb-13	HV
Fluoride	0.13	0.10	mg/L	EPA 300.0	8-Mar-13 at 20:53	ML
TDS	70	10	mg/L	2540 C	4-Mar-13	HV
Nitrate	0.09	0.01	mg/L	4500 NO3 E	6-Mar-13	NA
Chloride	14.0	1.0	mg/L	4500CL B	at 13:30 5-Mar-13 at 16:30	NA
Sulfate	8.0	2.0	mg/L	4500SO <sub>4</sub> 2E	4-Mar-13	NA .
· · · · · · · · · · · · · · · · · · ·		1	<u> </u>	<u> </u>	at 14:00	



#### Primary Laboratories, Inc. Results

26-Mar-13

Date Sampled: Work Order No: Client ID:

27-Feb-13 1302254-06

Nanna RO Backwash

Method	Date	Tech.
Numbers*	Analyzed	Initials
3120 B	6-Mar-13	HV
3120 B	6-Mar-13	ΗV
3120 B	6-Mar-13	HV
3120 B	6-Mar-13	HV
3120 B	6-Mar-13	ΗV
3120 B	6-Mar-13	HV
3120 B	25-Mar-13	HV
3120 B	6-Mar-13	HV
3120 B	6-Mar-13	HV
3120 B	25-Mar-13	HV
3120 B	6-Mar-13	HV
3120 B	25-Mar-13	HV
3120 B	6-Mar-13	HV
3120 B	6-Mar-13	H∨
3112 B	6-Mar-13	HV
3120 B	6-Mar-13	ΗV
3120 B	25-Mar-13	HV
3120 B	25-Mar-13	ΗV
3120 B	25-Mar-13	ΗV
3120 B	25-Mar-13	HV
3120 B	6-Mar-13	HV
3120 B	6-Mar-13	HV
3120 B	6-Mar-13	HV
		I



## Primary Laboratories, Inc. Results

26-Mar-13

Date Sampled:

27-Feb-13 1302254-06

Work Order No.

Nanna RO Backwash

Client ID:	Nanna RO Bac	kwash				
Test	Final	Reporting	Units of	Method	Date	Tech.
Description	Result	Limit	Measure	Numbers*	Analyzed	Initials
Metals, Dissolved			1			
Aluminum	0.052	0.050	mg/L	3120 B	6-Mar-13	HV
Antimony	<0.100	0.100	mg/L	3120 B	6-Mar-13	HV
Arsenic	<0.050	0.050	mg/L	3120 B	6-Mar-13	HV
Barium	<0.020	0.020	mg/l,	3120 B	6-Mar-13	HV
Beryllium	<0.010	0.010	mg/L	3120 B	6-Mar-13	ΗV
Boron	<0 100	0.100	mg/L	3120 B	6-Mar-13	HV
Cadmium	<0.0003	0.0003	mg/L	3120 B	25-Mar-13	HV
Chromium	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV
Cobalt	< 0.020	0.020	mg/L	3120 B	6-Mar-13	HV
Copper	0.004	0.001	mg/L	3120 B	25-Mar-13	ΗV
Iron	<0.050	0.050	mg/L	3120 B	6-Mar-13	HV
Lead	< 0.001	0.001	mg/L	3120 B	25-Mar-13	HV
Magnesium	<0.020	0.020	mg/L	3120 B	6-Mar-13	HV
Manganese	< 0.020	0.020	mg/L	3120 B	6-Mar-13	ΗV
Mercury	<0.0002	0.0002	mg/L	3112 B	6-Mar-13	H∀
Molybdenum	0.026	0.026	mg/L	3120 B	5-Mar-13	HΥ
Nicke.	0.007	0.005	rng/L	3120 B	25-Mar-13	HV
Selenium	<0.002	0.002	mg/L	3120 8	25-Mar-13	ΗV
Silver	<0.0001	0.0001	mg/L	3120 B	25-Mar-13	∺V
Thalium	< 0.0002	0.0002	mg/L	3120 B	25-Mar-13	HV
Tin	< 0.050	0.050	mg/L	3120 B	6-Mar-13	H∨
Titanium	<0.020	0,020	mg/L	3120 B	6-Mar-13	HV
Zinc	<0.010	0.010	mg/L	3120 B	6-Mar-13	HV
		1				

JRA- James R. Reed & Associates

AC- Analytics Corporation

AS- AmeriSci

ML - Microbac Laboratories

**UL- Universal Laboratories** 

\* All methods are Standard Methods 18th Edition unless otherwise noted. Note: All analyses are NELAC certified except where noted with a (#),

Signature:

Parey L. Bragg

Laboratory Manager

Date: 🎺

VELAP# 460173 DCLS# 237

These analytical results are based upon materials provided by the chord and intended for the exclusive ese of the chent. These analytical results represent the best addressed of Primary Laboratories. For Primary Laboratories, for, assumes no respectively, express or implied, as to the interpretation of the analytical results contained in this report. This seport is not to be reproduced except with the written approval of Primary Laboratories. Inc.



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8-4-921-9226

Temps 4.3°C on ice

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มีรักษณ์(ขระ)





1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

March 15, 2013

Mr. Glenn Bishop Dominion Environmental Biology 4111 Castlewood Road Richmond, VA 23234

RE: Project: North Anna GAC

Pace Project No.: 3088593

#### Dear Mr. Bishop:

Enclosed are the analytical results for sample(s) received by the laboratory on March 01, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jacquelyn Collins

Ser zurlydellin.

jacquelyn.collins@pacelabs.com

Project Manager

Enclosures







#### **CERTIFICATIONS**

Project:

North Anna GAC

Pace Project No.:

3088593

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4 Greensburg, PA 15601

ACLASS DOD-ELAP Accreditation #: ADE-1544

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

California/TNI Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Guam/PADEP Certification

Hawaii/PADEP Certification

Idaho Certification

Illinois/PADEP Certification Indiana/PADEP Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133 Louisiana/TNI Certification #: LA080002 Louisiana/TNI Certification #: 4086

Maine Certification #: PA0091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification Missouri Certification #: 235

Montana Certification #: Cert 0082

Nevada Certification

New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

Oregon/TNI Certification #: PA200002 Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

South Dakota Certification #: TN2867
Texas/TNI Certification #: T104704188

Utah/TNI Certification #: ANTE

Virgin Island/PADEP Certification

Virginia Certification #: 00112
Virginia/VELAP Certification #: 460198
Washington Certification #: C868

West Virginia Certification #: 143

Wisconsin/PADEP Certification

Wyoming Certification #: 8TMS-Q





1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

#### SAMPLE SUMMARY

Project:

North Anna GAC

Pace Project No.:

3088593

Lab ID

Sample ID

Matrix

**Date Collected** 

**Date Received** 

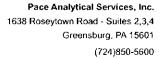
3088593001

North Anna GAC

Water

02/26/13 10:30

03/01/13 09:00





#### **SAMPLE ANALYTE COUNT**

Project:

North Anna GAC

Pace Project No.:

3088593

Lab ID	Sample ID	Method	Analysts	Analytes Reported
3088593001	North Anna GAC	EPA 900.0m	C11	2
		ASTM D5811-95	MBT	1
		EPA 906.0	CMC	1





#### **PROJECT NARRATIVE**

Project:

North Anna GAC

Pace Project No.:

3088593

Method: EPA 9

EPA 900.0m

Description: 900.0 Gross Alpha/Beta

Client:

**Dominion Environmental Biology** 

Date:

March 15, 2013

#### General Information:

1 sample was analyzed for EPA 900.0m. All samples were received in acceptable condition with any exceptions noted below.

#### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

#### Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

#### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

#### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

#### **Additional Comments:**



Pace Analytical Services, Inc.

1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601

(724)850-5600

#### **PROJECT NARRATIVE**

Project:

1 North Anna GAC

Pace Project No.:

3088593

Method:

ASTM D5811-95

Client:

Description: 905.0 Strontium 89/90 Eichrom **Dominion Environmental Biology** 

Date:

March 15, 2013

#### General Information:

1 sample was analyzed for ASTM D5811-95. All samples were received in acceptable condition with any exceptions noted below.

The samples were analyzed within the method required hold times with any exceptions noted below.

#### Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

#### **Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

#### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

#### **Additional Comments:**





**PROJECT NARRATIVE** 

Project:

North Anna GAC

Pace Project No.:

3088593

Method:

EPA 906.0

**Description:** 906.0 Tritium **Client:** Dominion Env

Dominion Environmental Biology

Date:

March 15, 2013

#### General Information:

1 sample was analyzed for EPA 906.0. All samples were received in acceptable condition with any exceptions noted below.

#### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

#### Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

#### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

#### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

#### Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.





#### **ANALYTICAL RESULTS**

Project:

North Anna GAC

Pace Project No.:

3088593

Sample: North Anna GAC

Lab ID: 3088593001

Collected: 02/26/13 10:30

Received: 03/01/13 09:00 Matrix: Water

PWS:	Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0m	-0.348 ± 0.453 (1.54)	pCi/L	03/13/13 08:16	12587-46-1	
Gross Beta	EPA 900.0m	2.74 ± 1.32 (2.28)	pCi/L	03/13/13 08:16	12587-47-2	
Strontium-90	ASTM D5811-95	-0.0600 ± 0.404 (1.03)	pCi/L	03/11/13 07:26	10098-97-2	
Tritium	EPA 906.0	5252 ± 754 (257)	pCi/L	03/11/13 18:56	10028-17-8	



Pace Analytical Services, Inc.

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#### **QUALITY CONTROL DATA**

Project:

North Anna GAC

Pace Project No.:

3088593

QC Batch:
QC Batch Method:

RADC/14926

ASTM D5811-95

Analysis Method: Analysis Description: ASTM D5811-95

905.0 Strontium 89/90 Eichrom

Associated Lab Samples:

3088593001

Matrix: Water

METHOD BLANK: 551263
Associated Lab Samples:

3088593001

Parameter

Act ± Unc (MDC)

Units

Analyzed

Qualifiers

Strontium-90

 $0.706 \pm 0.566 \quad (1.14)$ 

pCi/L

03/11/13 07:24



Pace Analytical Services, Inc.

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(724)850-5600

#### **QUALITY CONTROL DATA**

Project:

North Anna GAC

Pace Project No.:

3088593

QC Batch:

RADC/14900

Analysis Method:

EPA 906.0

QC Batch Method: EPA 906.0

Analysis Description:

906.0 Tritium

Associated Lab Samples:

METHOD BLANK: 550543

3088593001

Matrix: Water

Associated Lab Samples:

3088593001

Act ± Unc (MDC)

Units

Analyzed

Qualifiers

Parameter Tritium

0.000 ± 144 (254)

pCi/L

03/08/13 06:57

Date: 03/15/2013 04:13 PM





#### **QUALITY CONTROL DATA**

Project:

North Anna GAC

Pace Project No.:

3088593

QC Batch: QC Batch Method:

RADC/14962

Analysis Method:

EPA 900.0m

EPA 900.0m

Analysis Description:

900.0 Gross Alpha/Beta

Associated Lab Samples:

3088593001

METHOD BLANK: 552792 Associated Lab Samples:

3088593001

Matrix: Water

Parameter

Act ± Unc (MDC)

Units

Analyzed

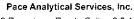
Qualifiers

Gross Alpha Gross Beta

 $0.364 \pm 0.805$  (1.89) -1.26 ± 1.05 (2.77)

pCi/L pCi/L 03/13/13 07:04 03/13/13 07:04

Date: 03/15/2013 04:13 PM





1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601

(724)850-5600

#### **QUALIFIERS**

Project:

North Anna GAC

Pace Project No.:

3088593

#### **DEFINITIONS**

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

**DUP - Sample Duplicate** 

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty

(MDC) - Minimum Detectable Concentration

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.



#### CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately

	d Client Information:		roject I	Section C Invoice Information:												Page	y: 1		of	1													
Compan		Repart To:	Glenr	ı Bisl	hop					Attent	lion;	Ġ	Blenn	Bisi	٦ΟΡ						7				•				-	•	_		
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Phone:	804-350-6918 Fax: 888-342-0629	Project Nam	e:							Paco F Manag	rojec	t			_			•			Site Location												
Request	ted Due Date/TAT: Normal	Project Num	ber.							Pace F		#:									STATE: V						A Property of the second of th						
												Analysis Filtered (Y/N)																					
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	CRIDIKING WATER DW WATER WT WASTEWATER WT WASTEWATER WT PRODUCT P SOLUSOLIC SL OL OL OL AIR AR (A-Z, 0-9/-) CTHER OT U						COMPI END/C		SAMPLE TEMP AT COLLECTION	INERS							sst1													0.2			
ITEM#	Sample IDs MUST BE UNIQUE TISSUE	īS	DATE	TIME	DATE	TIME	SAMPLE TEMP			H <sub>2</sub> SO <sub>4</sub>	HCI	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Other	Analysis	Gross Alpha	<del></del>	Strontium 90	o allega	Trilium						Pace		lo./ Lab I.D.					
1	North Anna GAC			c	2/25/13	10:35	2/26/13	10:30		2	X	-	+-	┦┦		- -	-	L×,	х	х	$\bot$	х		$\perp$	Ш	$\perp$		a exceeds (					
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						PRINT Name of SAMPLER: Glenn Bishop											Tempin "C	ved o	y Sea	es Inti													
							SIGNATURE of SAMPLER: UN DATE Signed (MM/DD/YY):							<b>.</b>	21	28/	1,3	,		Tem	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)										

#### Sample Condition Upon Receipt

Pace Analytical Client Name	e: Dominion Env. Project # 3096593
Courier: Fed Ex DUPS USPS Clied  Tracking #: 12.62V975019028  Custody Seal on Cooler/Box Present: yes	89308 Proj. Due Date:
• •	
Packing Material: Bubble Wrap Bubble Thermometer Used 5 6 7	E Bags ☐ None ☐ Other  Type of Ice: Wet Blue ★one ☐ Samples on ice, cooling process has begun
	Richard Tiesus is Erozen: Yes No Date and Initials of person examining
Cooler Temperature N'A Temp should be above freezing to 6°C	Comments:
Chain of Custody Present:	Øyes □No □NA 1.
Chain of Custody Filled Out:	ÜYçs □No □N/A 2.
Chain of Custody Relinquished:	Gyes □No □N/A 3.
Sampler Name & Signature on COC:	Eyes Ono On/A 4.
Samples Arrived within Hold Time:	Wes Ono Onia 5.
Short Hold Time Analysis (<72hr):	□Yes ☑No □NA 6.
Rush Turn Around Time Requested:	□Yes □No □NA 7.
Sufficient Volume:	ZYes ONO ONIA 8.
Correct Containers Used:	ØYes □No □N/A 9.
-Pace Containers Used:	□Yes DVO □NIA
Containers Intact:	Layes Ono On/A 10.
Filtered volume received for Dissolved tests	□Yes □No LiNA 11.
Sample Labels match COC:	[2] HS   DN0   DN/A 12.
-Includes date/lime/ID/Analysis Matrix:	WA
All containers needing preservation have been checked.	15/cs (3NO (3N/A 13. 3/1/13 1220 CML HWG)
All containers needing preservation are found to be in compliance with EPA recommendation.	DYES DATO DIVIA JEST 500 ML UNDRES for tritle
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	□Yes □No   Initial when   Lot # of added   preservative   DL13-0152
Samples checked for dechlorination:	□Yes □No ☑N/A 14.
Headspace in VOA Vials ( >6mm):	□Yes □No □N/A 15.
Trip Blank Present:	□Yes □No □N/A 16.
Trip Blank Custody Seals Present	Dyes Ono Phia
Pace Trip Blank Lot # (if purchased):	
Client Notification/ Resolution:	Field Data Required? Y / N
Person Contacted:	Date/Time:
Comments/ Resolution:	
	,
	(all all
Project Manager Review:	Date: 2/4//3

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

page 2

Project Number:

3088593

Client Name:

Dominion

	[							1			1 1				. 1		I	1			······	<sub>1</sub>	I	
ltem No.	Matrix Code	Glass Jar (120 / 250 / 500 / 1L)	Soil kit (2 SB, 1M, soil jar)	Chemistry (250 (50b / 1L)	Organics (1L)	Nutrient (250 / 500 )	Phenolics (250 ml)	TOC (40 ml / 250 ml)	TOX (250 ml)	Total Metals	Dissolved Metals preserved Y N	O&G(1L)	гРН (1L)	VOA (40 ml 30 ml)	Cyanide (250 ml)	Sulfide (500 ml)	Bacteria (120 ml)	Wipes / swipe/ smear/ filtor	Radchem Naigeno (125 / 250 / 500 / 🕕	Radchem Nalgene (1/2 gal. / 1 gal.L)	Cubitainer (500 ml / 4L)	Ziploc	Other	Other
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**Dominion Resources Services, Inc.** 5000 Dominion Boulevard, Glen Allen, VA 23060 Web Address: www.dom.com



July 5, 2013

#### <u>BY U.S. MAIL</u> RETURN RECEIPT REQUESTED

Ms. Susan Mackert Department of Environmental Quality Northern Regional Office 13901 Crown Court Woodbridge, VA 22193



RE: <u>Dominion North Anna Power Station</u>

Application for Reissuance of VPDES Permit No. VA0052451: Addendum #1

Dear Ms. Mackert:

Our application for the renewal of VPDES Permit No. VA0052451 for the North Anna Power Station was submitted to DEQ on April 9, 2012. We are submitting this addendum to the application to incorporate the following changes:

- 1. Vacuum Priming Pumps: The Station currently has three vacuum priming pumps located in the vacuum priming house, which is located on the discharge structure at the head of the discharge canal. The purpose of the vacuum priming pumps is to draw a vacuum on the circulating water tunnel to provide a motive force for the water being discharged through the tunnel. Water is pulled from the discharge canal, run through the pumps to create a vacuum, and then drained back to the discharge canal. No chemical treatment or process exposure occurs in the vacuum priming house. Two pumps are usually in service with the third pump in standby. Each pump has a flowrate of 20 gpm with a total flowrate of approximately 40 gpm (0.0576 mgd). We request that the Vacuum Priming Pumps be identified as Outfall 116 in the VPDES permit. The applicable information is provided in the attached revised EPA Form 2C, process flow diagram and outfall location map.
- 2. Salt Storage Pond: A new salt and sand storage facility has been constructed as part of the site separation project (location map attached). Salt and sand are used periodically for road maintenance during winter conditions. The salt and sand will be kept in an enclosed storage building and will not be exposed to stormwater. The area around the storage building drains to a lined retention basin. Photographs of the salt storage building and pond are attached. The only material that would be exposed to stormwater would be residual salt and sand from loading and unloading activities. The pond does not have a discharge structure. The retention basin is designed to retain approximately 220,000 gallons without discharging. In most cases, the pond will be allowed to evaporate. However, in the event that there is water in the pond and a major storm is approaching, Dominion would need to remove water to provide adequate storage to

avoid a discharge to state waters. Dominion is requesting authorization to pump water from the salt storage pond to the Waste Heat Treatment Facility (WHTF) via the discharge canal as Outfall 117 on an as-needed basis to maintain adequate storage for storm events. The maximum volume discharged during a discharge event would be less than 220,000 gallons. The average flow of condenser cooling water (Outfall 101) to the discharge canal is 1838.8 mgd. Discharge from the salt storage pond would not occur on a regular basis and would occur only when necessary to avoid a discharge to Lake Anna. The applicable information is provided in the attached revised EPA Form 2C, process flow diagram and outfall location map.

Should you have any questions and/or require additional information, please contact Jason Ericson at 804-273-3485 or via email at jason.p.ericson@dom.com.

Sincerely,

Cathy C. Taylor

Director, Electric Environmental Services

Attachments: Form 2C, Outfall Location Map, Process Flow Diagram, Salt Storage Facility Location, Salt Storage Facility Photographs

Please type or print in the unshaded areas only

Form Approved OMB No. 2040-0086

Form 2C **NPDES** 



# OMB No. 2040-0086 Approval expires 3-31-98 U.S. ENVIRONMENTAL PROTECTION AGENCY APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICUTLRAL OPERATIONS Consolidated Permits Program

I. Outfail Location		
	•	

Outfall	Latitude Longitude			Receiving Water (name)			
Number (list)	Deg	Min	Sec	Deg	Min	Sec	
001	38	00	30.2	-77	43	43	Lake Anna
101	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
103	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
104	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
105	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
107	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
108	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
109	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
110	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
111	38	03	46	-77	47	13.4	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
112	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
113	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
114	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
115	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
116	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
117	38	03	5.8	-77	47	3.1	Discharge Canal to Waste Heat Treatment Facility to Lake Anna
009	38	03	43.6	-77	47	31	Lake Anna
013	38	03	43.6	-77	47	24.4	Lake Anna
016	38	03	43.6	-77	47	24.4	Lake Anna
020	38	03	43.6	-77	47	24.4	Lake Anna
021	38	03	43.6	-77	47	24.4	Lake Anna

- A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined (e.g. for certain mining activities), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures. See Attachment B.
- B. For each outfall, provide a description of (1) all operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and stormwater runoff; (2) the average flow contributed by each operation; and (3) the treatment received by the wastewater. Continue on additional sheets if necessary.

	stewater. Continue on additional shee				•			
1. Outfall	2. Operations Con	tributing Flow	3. Treatment					
Number	a. OPERATION (list)	b. AVERAGE FLOW	a. DESCRIPTION	b. LIST CODES F	ROM TABLE 2C-1			
001	Discharges from the Waste Heat Treatment Facility (WHTF), which includes internal outfalls, at Dike 3	2335.8 MGD	Discharge to Lake Anna	4-A				
101	Condenser cooling water	1838.8 MGD	Discharge to discharge canal	1 <b>-</b> O				
103	Process wastewater clarifier, including flow from the liquid radioactive waste management system Steam generator blowdown Package boiler blowdown Mat sump system Ion exchange waste Sevice water system high capacity blowdown (intermittent)	0.312 MGD	Ion exchange; discharge to discharge canal	2-Ј	1-0			
104	Turbine building sumps 1, 2, &3 Storm water Fire water system line drains Misc. discharges of purified or raw lake water from various infrequent plant maintenance activities Chiller water Service water Condensate Storage Tanks AST Containment Sump Demineralizer Sump Plant condensers Bearing cooling water Temporary package boiler blowdown	0.288 MGD	O/W separator; discharge to discharge canal Neutralization	1-H 2-K	1-0			
105	Bearing cooling tower blowdown - Continuous blowdown - Lake to lake operation (intermittent)	0.084 MGD	Discharge to discharge canal	1-0				
107	Bearing cooling tower blowdown - Continuous blowdown - Lake to lake operation (intermittent) Strainer blowdown	Intermittent (has not discharge during 2008-2010 time period)	Discharge to discharge canal	1-0				
108	Service water overboard Batch blowdown overflow Straight-through cooling water Header maintenance	Intermittent (0.15 MGD for the 2008-2010 time period)	Discharge to discharge canal	1-O				
109	Hot well drain – Unit 1 Secondary system condenstate	Intermittent (1.152 MGD for the 2008- 2010 time period)	Discharge to discharge canal	1-0				
110	Hot well drain – Unit 2 Secondary system condenstate	Intermittent (0.137 MGD for the 2008-2010 time period)	Discharge to discharge canal	1-0	3MA			
111	Unit 1 & 2 STP	0.03 MGD design daily avg flow 0.0058 MGD daily avg flow	See EPA Form 2A; Discharge to discharge canal	1-T, 1-L, XX, 3-A, 5-A, 1-U, 2-F	1-0			
112	Steam generator blowdown – Unit 1	0.204 MGD	Discharge to discharge canal	1-0				
113	Steam generator blowdown – Unit 2	0.204 MGD	Discharge to discharge canal	1-0	-			
114	Service water tie-on vault drain	Intermittent (0.0002 MGD for the 2008- 2010 time period)	Discharge to discharge canal	1-0	72			

115	Service water system high capacity blowdown	Intermittent (has not discharge during 2008-2010 time period)	Discharge to discharge canal	1-0	
116	Vacuum priming pump	0.058 MGD	Discharge to discharge canal	1-0	i
117	Salt storage pond	Intermittent (has not previously discharged)	Discharge to discharge canal	1-U 1-Q	
009	Settling pond: Groundwater; storm water; RO unit backwash; Bearing cooling tower water during maintenance activities; lonics emergency shower wash post neutralization in holding tank	0.576 MGD	Sedimentation; Discharge to Lake Anna	1-U, 4-A	
013	Turbine building sumps #1 and #2 Stormwater Plant condensers Bearing cooling water Misc. discharges of purified or raw lake water from various infrequent plant maintenance activities	Intermittent (0.324 MGD for the 2008- 2010 time period)	Discharge to Lake Anna	4-A	
016	Intake screen wash water	3.744 MGD	Discharge to Lake Anna	4-A	
020	Reverse Osmosis (RO) reject	0.216 MGD (RO reject only)	Discharge to Lake Anna	4-A	
021	RO drain line	Intermittent (has not discharge during 2008-2010 time period)	Discharge to Lake Anna	4-A	

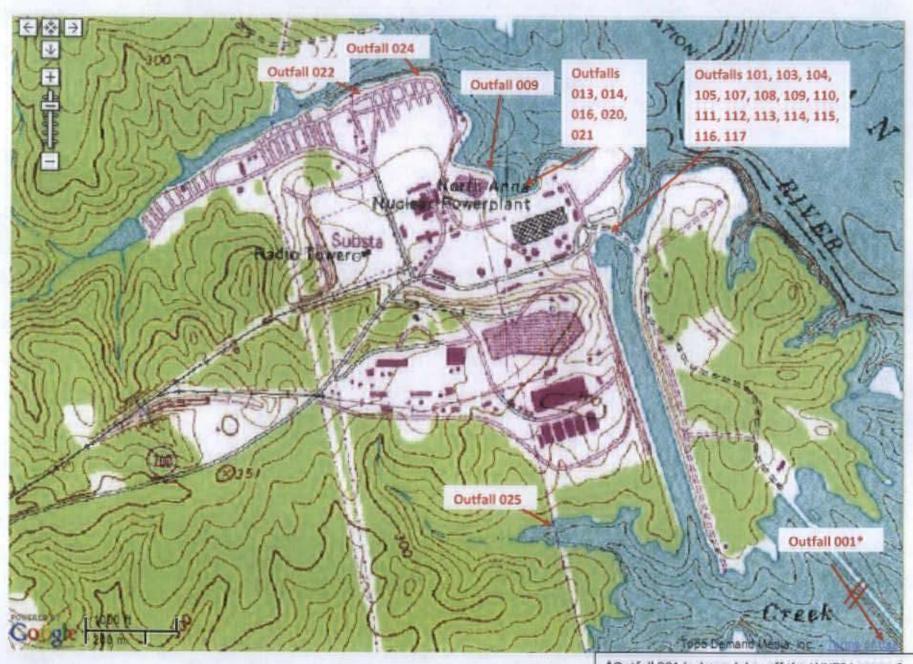
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C. Except for s	ES (complete the follo	wina table	<del>;</del> )		NO (go to Section	an III)			
	T	<u></u>	·	QUENCY	נט נט טפטוים	)N 1111)	4. FLOW		
1. OUTFALL NUMBER	2. OPERATION		a. DAYS PER WEEK	b. MONTHS PER YEAR		W RATE mgd)	b. TOTAL	VOLUME with units	c. DUR-
(list)	(list)	1011	(specify average)	(specify average)	1. LONG TERM AVERAGE	2. MAXIMUM DAILY	1. LONG TERM AVERAGE	2. MAXIMUM DAILY	ATION (in days)
107	Bearing cooling towe	r	Varies	Varies			2008-2010 time pe		n/a
	- Continuou								
	blowdown - Lake to lal								
	operation								
	(intermitte Strainer blowdown	ent)							
108	Service water overboa		Varies	Varies	0.15 MGD	0.15 MGD	0.15 MG	0.15 MG	1
	Batch blowdown over Straight-through cool								
	water	III'S							
109	Header maintenance Hot well drain – Unit	+	I/ outage	I/ 18 months	1.152 MGD	1.152 MGD	1.152 MG	1.152 MG	1
(V)	Secondary system		I/ Outage	1/ 10 monna	1.104 1930	1.176 0106	1.172 1110	1,104 mg	1
110	condenstate  Hot well drain – Unit	2	1/ outage	1/ 18 months	0.137 MGD	0.137 MGD	0.137 MGD	0.137 MGD	1
110	Secondary system	4	I/ Outage	1/ 10 tuonna	0.137 MOD	U.137 IVIOE	U.13/ MOD	טיטאו (כויט	'
114	condenstate Service water tie-in v	/ault	Varies	Varies	0.0002 MGD	0.0002 MGD	0.0002 MG	0.0002 MG	1
115	drain Scrvice water system		Varies						
	capacity blowdown	hign		Varies			2008-2010 time pc		n/a
117 013	Salt storage pond Turbine building sum	no #1	Varies Varies	Varies Varies	0.324 MGD	lo discharge to dat 0.324 MGD	e; <220,000 gallor 0,324 MG	ns 0.324 MG	n/a l
	and #2; stormwater	ps #1							_
021	RO drain line		Varies	Varies	No	discharge during 2	2008-2010 time pe	riod	n/a
III DDODUO	TION							<u> </u>	
III. PRODUCT	IION								
A. Does an e	effluent guideline limit		rulgated by E	_		-	ply to your facilit	ý?	
A. Does an e	effluent guideline limita X YES (complete Ite	em III-B)		NO	) (go to Section	IV)		-	
A. Does an e	effluent guideline limit  X YES (complete Ite mitations in the applica  YES (complete Ite	em III-B) able efflue Item III-C)	ent guideline e	expressed in term X NO	(go to Section)  is of production  (go to Section I	IV) (or other measu V)	re of operation)?		
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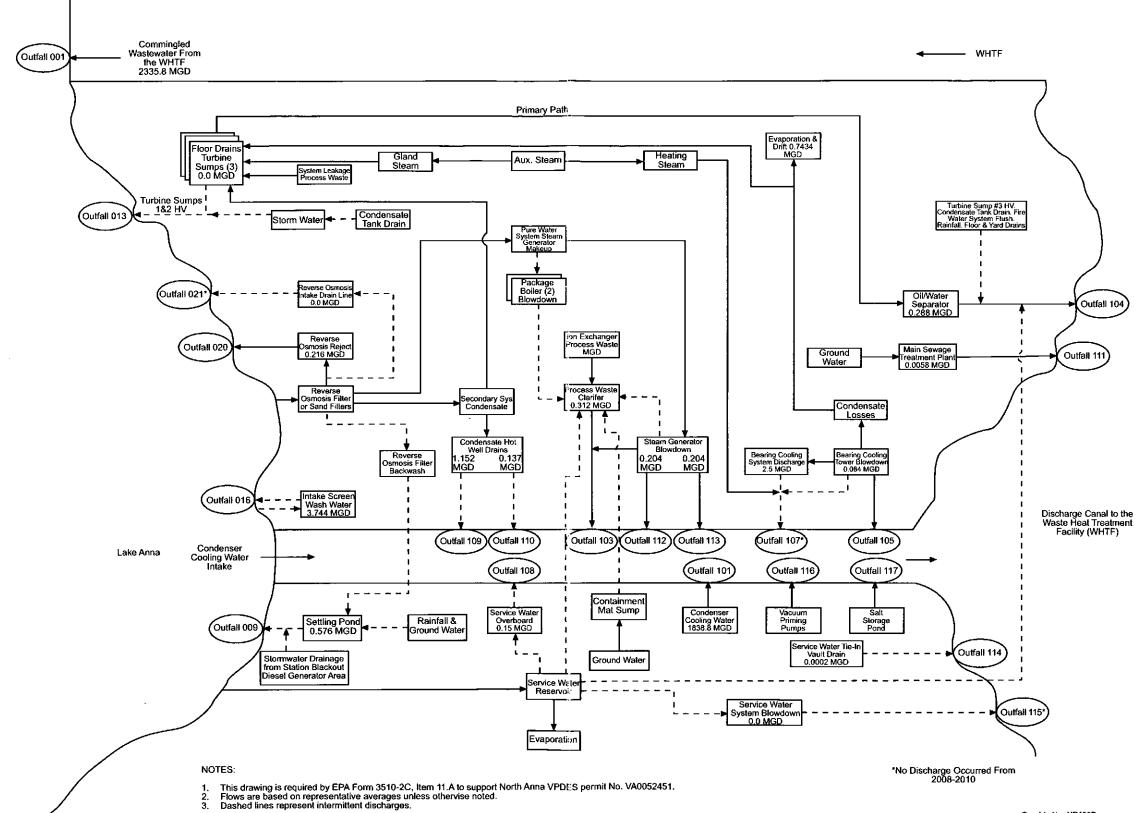
Use the space below to list	V-A, V-B, and V-C are included on separ	of tables for each outfall - Annotate the rate sheets number V-1 through V-9.	
	any of the pollutants listed in Tables 2c-3 by outfall. For every pollutant you list, brid	3 of the instructions, which you know	
may be discharged from an data in your possession.	y outrail. For every pollutant you list, brit	eny describe the reasons you believe	it to be present and report any analytica
1. POLLUTANT	2. SOURCE	1. POLLUTANT	2. SOURCE
2C-3 pollutants are known	or believed to be discharged from any o	outfall.	
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LEL .			
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	+	+	
DOTELLIA: DIGGISS	OFO NOT COMPRES BY AND COM		
	GES NOT COVERED BY ANALYSIS on V-C a substance or a component of a s		
	facility are regulated by the Nuclear Reglischarges not covered by analysis.	gulatory Commission (NRC), they h	ave not been listed here. See Attachme
	total ground to total of many con-		

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VII. BIOLOGICAL TOXICITY	TESTING DATA			
			r chronic toxicity has been m	ade on any of your discharges or on a
receiving water in relation to you	-	=		
		s) and describe their purpose t		NO (go to Section VIII)
				PDES permit. For outfall 001, the
				hronic 7-day static renewal survival and
growth tests with Pimephales pr	omelas. A summary	of the test results from 2008	– 2011 are below.	
Year	C	dubia	D	promelas
	OEC Survival	NOEC Reproduction	NOEC Survival	NOEC Growth
April 2008	100%	100%	100%	100%
Артіі 2008 Артіі 2009	100%	100%	100%	100%
April 2010	100%	100%	100%	25%
Ocotber 2010 (1)	-	-	100%	50%
Ocotber 2010 (2)	-	-	100%	100%
April 2011	100%	100%	100%	100%
(1) Using Syntheic Freshwat		227,2		
(2) Using softened Synthetic				
(=)g				
VIII. CONTRACT ANALYSIS	INFORMATION			
Were any of the analyses reporte		d by a contract laboratory or o	onsulting firm?	
	· ·	and telephone number of, and		o to Section IX)
		n laboratory or firm below)	polititarits	To Section (x)
·			C. TELEPHONE	D. POLLUTANTS ANALYZED
A. NAME	В	. ADDRESS	(area code & no.)	(list)
Primary Laboratories Inc.	7423 Lee Davis Ro	l., Mechanicsville, VA	(804) 559-9004	See Attachment D
	23111			
Pace Analytical	1638 Roseytown R	d., Greensburg, PA 15601	(724) 850-5600	See Attachment D
	· ·		( )	
			( )	
			+	
			( )	
···			1( )	
IX. CERTIFICATION				
I certify under penalty of law th	at this document and	d all attachments were prepare	ed under my direction or su	pervision in accordance with a system
designed to assure that qualified	ia personnei properly	r gatner and evaluate the infol	rmation submitted. Based o	n my inquiry of the person or persons tion submitted is, to the best of my
knowledge and helief true acc	ruse persons unecu	y responsible for gathering to	ne momation, the morna significant negalties for sub-	mitting false information, including the
possibility of fine and imprisonm	ent for knowing viola	tions.	organiouric portalities for SUDI	many raise anormation, areading the
A. NAME & OFFICIAL TITLE (typ		·		B. PHONE NO. (area code & no.)
Daniel G. Stoddard, Senior VI		18		(804) 273-4390
	Tracteal Operation			
C. SIGNATURE	1.1 1			D. DATE SIGNED
(Jan)	Kappark			D. DATE SIGNED
	11 0 0 12 0 4			



\*Outfall 001 is down-lake, off the WHTF Lagoon 3 dam as depicted on URS topographic map (also included in this Attachment).

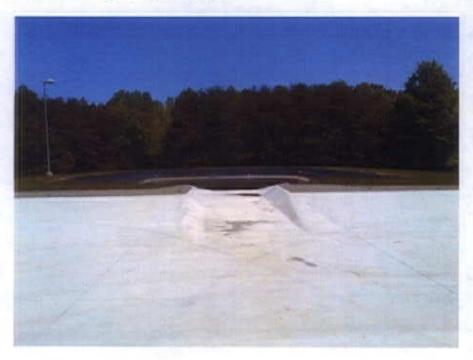




## North Anna Power Station (VPDES VA0052451) Application Addendum 1; June 2013 Salt Storage Area Photographs



Salt Storage Building looking northeast



Salt Storage Pond looking east



Salt Storage Pond and Building looking west